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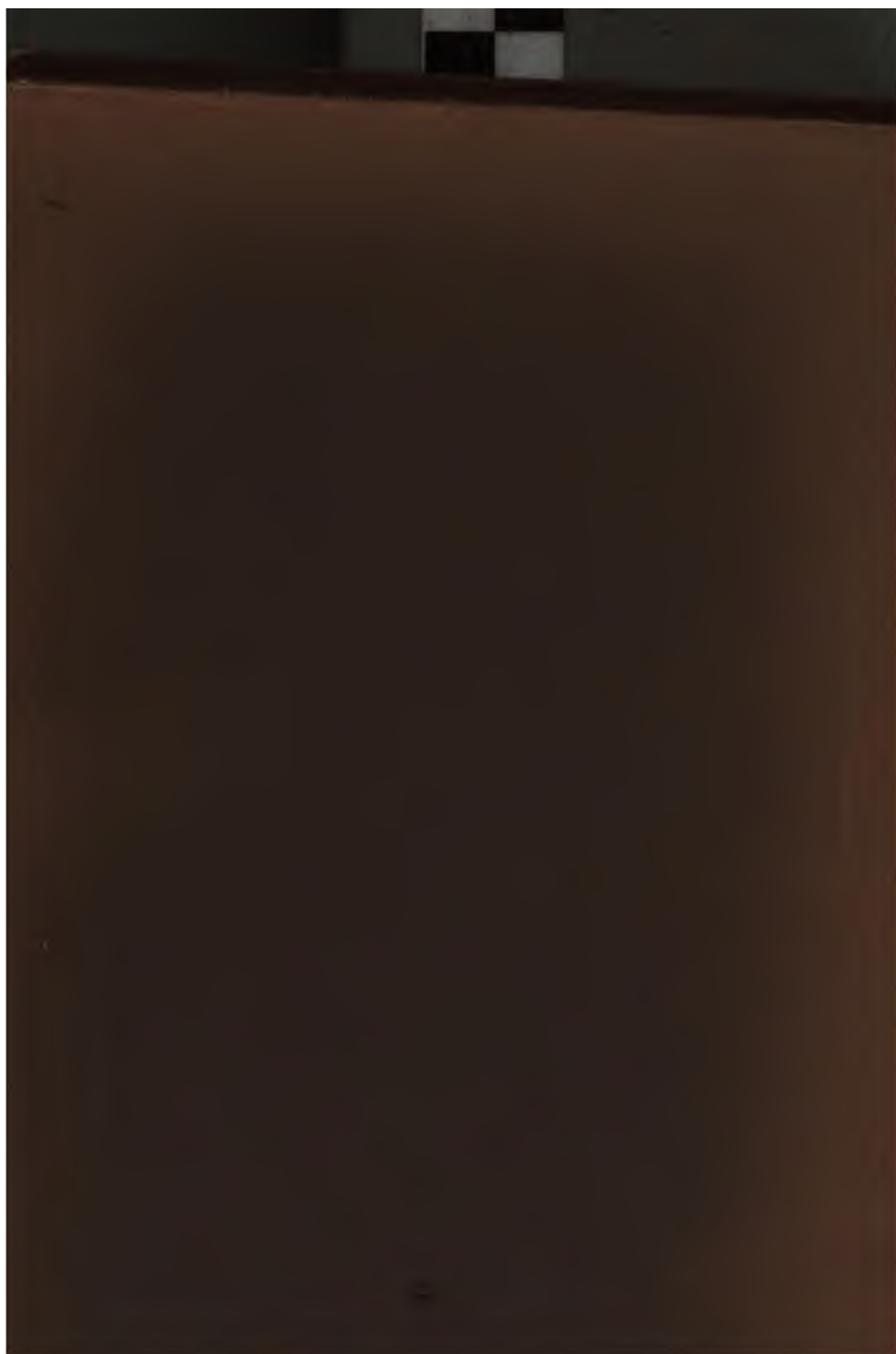
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DR. DOBELL'S
ANNUAL REPORTS ON DISEASES OF THE CHEST.



ANNUAL REPORTS
ON
DISEASES OF THE CHEST,

UNDER THE DIRECTION OF
HORACE DOBELL, M.D.,
ETC., ETC.,
CONSULTING PHYSICIAN TO THE ROYAL HOSPITAL FOR DISEASES OF THE CHEST, ETC., ETC.
ASSISTED BY NUMEROUS AND DISTINGUISHED COADJUTORS
IN DIFFERENT PARTS OF THE WORLD.

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BACON, *Advancement of Learning.*

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TOWARDS the close of each year will be published a complete *précis* of the work of the year in that DEPARTMENT OF PRACTICAL AND SCIENTIFIC MEDICINE which includes the Anatomy, Physiology, Morbid Anatomy, Pathology, Diagnosis, Etiology, Materia Medica, Therapeutics, Climatology, etc., etc., of the THORACIC ORGANS and their immediate associates.

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Although the department selected is the widest and most important in medicine, it will be practicable, by keeping within its boundaries, to produce such a complete *précis* of all important work, that these Reports, when collected from year to year, will constitute a most COMPREHENSIVE, CONCISE, AND RELIABLE BOOK OF REFERENCE ON CHEST DISEASE, and will enable the MEDICAL PRACTITIONER readily to compare the works of different authors, instead of relying upon those of any one, and to see at a glance the latest improvements in treatment; while to the SCIENTIFIC STUDENT they will present an epitome of modern discovery and research.

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Numerous works and papers from their Authors or Publishers, and the following Journals from their Editors, are acknowledged with thanks.

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REPORTS

ON THE

ANATOMY, PHYSIOLOGY, PATHOLOGY, ETIOLOGY, AND THERAPEUTICS OF THE THORACIC ORGANS AND THEIR IMMEDIATE ASSOCIATES.

. The responsibility for the contents of each Report rests entirely with the Reporter whose name appears at its head.

FRANCE.

(Report by ADOLPHE WAHLTUCH, M.D.)

ANATOMY AND PHYSIOLOGY.

Anatomical Researches on the Laryngeal Mucous Membrane.—Dr. P. Coyne concludes from his researches:—

1. That the upper vocal cords constitute folds of the mucous membrane, and have no fibro-elastic ligament, as supposed by former authors.

2. There exist in the superficial layer of the membrane closed ovular follicles.

3. The inferior vocal cords contain fibro-elastic tissue surmounted by small papillæ along the border of these cords.

4. There are large glands situated in the centre of the upper cords, and none are to be seen in the lower cords, but in these latter the ducts of the neighbouring glands open near the papillary margin.

5. The epithelium is tessellated, and resembles that of the cutaneous epidermis, but in the lower parts it is cylindrical and ciliated.—(*"Revue des Sciences Médicales,"* Vol. iv., 1874, pp. 9, 10.)

Embryology of the Bronchial Cavities.—Dr. Pouchet communicates the fact that the bronchial tubes are not developed by complete budding, but that only the internal membrane forms dilatations or buds. The cavities and buds in the embryo contain a fluid, and not a mass of epithelial cells.—(*"Gazette Hebdomadaire,"* July 17, 1874, p. 469.)

The Blood Gases.—Dr. Jolyet concludes from his experiments:—

1. The proportion of oxygen-gas in the blood of birds and that of

mammalia is as 20 to 28; but the arterial blood in birds is saturated with oxygen-gas, which allows a more active respiration.

2. Blood, in a certain state of putrefaction after death, has the property of absorbing nearly the same amount of oxygen as when in a fresh state taken during life.—("Gaz. Hebd.," July 17, 1874, p. 469.)

Iron in Blood.—The experimental researches of Drs. Paquelin and Joly show that iron is contained in the blood-corpuscles in the form of tribasic phosphate of the protoxide of iron.—("Comptes Rendus de l'Académie des Sciences," July, 1874.)

Coagulation of Blood.—Drs. Mathieu and Urbain conclude from their experiments that free carbonic acid gas is the agent of coagulation of blood, and, during life, being fixed like the oxygen by the blood corpuscles, such coagulation is prevented; also that neutral salts counteract coagulation by their uniting with the carbonic acid, and thereby withdrawing the gas from the blood.—("Comptes Rendus de l'Acad. des Sciences," Sept. 14, 1874.)

Blood Pressure.—Dr. Badaud's experiments ("Verhandlungen der Phys.-Med. Gesellschaft," zu Würzburg, Band viii.) show:—

1. The pressure in the pulmonary artery is much less than in the aorta.

2. On section of the spinal cord, the pressure sinks in both, but so much more so in the aorta than in the pulmonary artery that it becomes almost exactly the same in both.

3. Galvanic irritation of the divided cord increases the pressure in both systems, but at a higher ratio in the pulmonary arteries than in the aorta.

These facts seem to indicate that the right ventricle is regulated by the central nervous system in the same way as the left.—("London Med. Rec.," Dec., 1874, p. 756.)

Rarefied Air and Oxygen Inhalations.—Dr. Bert, whilst breathing in an apparatus filled with rarefied air, felt the same effects as experienced when in the atmosphere of high mountains, namely:—irregular respiration and pulsation, and convulsive tremblings in the limbs; but these symptoms soon disappeared on inhaling oxygen-gas. Guided by these experiments, Messrs. Crocé-Spinelli and Sivel, with the aid of oxygen inhalations, were enabled to reach, in a balloon, the height of 7,300 metres, without experiencing any ill effects. Dr. Blanc experienced similar physiological effects in mines where the vitriolisation of the rocks had absorbed oxygen from the air; and he therefore concludes that the action of rarefied air is due to the loss of tension in the oxygen of the inspired air.—("Revue des Sciences Méd.," Vol. iv., 1874, p. 438.)

Physiology of the Heart.—Dr. Vulpian ("Gaz. Hebd. de Méd.," &c., May 8, 1874) obtained the following conclusions from experiments with curara in dogs:—

1. The auricles in mammalia have a very distinct, unmistakable systolic movement, which immediately precedes the systolic movement of the ventricles.

2. There can be several contractions of the auricles to one of the ventricles.

3. The revolution of the heart begins with the systole of the auricle, and finishes with the diastole of the ventricle.—("London Med. Rec.," June, 1874, p. 369.)

Parotid Saliva.—Dr. Prompt ("Gaz. des Hop.," p. 814) draws the following conclusions from his observation of a salivary fistula in a boy aged twelve:—

1. The discharge of the parotid saliva depends on the excitation of the sense of taste, and is always the same, whatever may be the form of that excitation.

2. The quantity of the secretion depends on the time during which the excitation of the sense of taste lasts.—("London Med. Rec.," Oct., 1874, p. 634.)

Deglutition.—Dr. Arloing ("Comptes Rendus de l'Acad. des Sciences," Nov. 2, 1874) gives the results of his studies of the phenomena of deglutition by the graphic method, as follows:—

1. In isolated deglutition, as in swallowing of solid food or saliva, there is a sudden contraction of the diaphragm at the moment when the larynx rises; and the pharynx, contracting, forces into the trachea a portion of the air it contains.

2. In successive deglutition, as in swallowing liquids by successive draughts, the respiration is not entirely suspended, but carried on completely, with slight interruptions during the passage of the wave of the fluids.—("London Med. Rec.," Nov., 1874, p. 743.)

Dr. G. Carlet sums up his views on the mechanism of the act of deglutition:—

1. The entrance of a morsel of food into the mouth is immediately followed by a lowering of the pressure in the pharyngeal cavity.

2. This diminution of pressure is effected by the uplifting of the soft palate, which becomes fixed to the pharynx, and thereby separates the back of the pharyngeal cavity from the nasal fossæ.

3. The void thus produced in the pharyngeal cavity, combined with a peristaltic movement in the tongue, causes the alimentary bolus to be sucked in, and to pass behind the anterior pillars of the soft palate.

4. The pressure of the air in the cavity of the mouth assists this passage of the food till it has reached the œsophagus.—("Gazette Hebdomadaire," Nov., 1874, p. 738.)

ETIOLOGY.

Etiology of Goutte.—Dr. Parchappe considers one of the causes of goutte to be impure drinking-water, characterised by a high specific

gravity, absence of iodine, abundance of sulphates, and presence of organic matter.—(“*Medizinische Neuigkeiten*,” Erlangen, Nov., 1874, p. 359.)

Etiology of the Persistence of the Foramen Ovale.—Dr. Parrot (“*Gaz. Hebdomadaire de Méd.*,” &c., May 8, 1874) believes the persistence of the foramen ovale to depend on the position of the two orifices. When the blood tries to flow from the left auricle to the right it finds an insurmountable barrier. And even when the opening is not closed, it is probable that the pressure on each side is equal, so that no mingling of the two bloods can take place. If, from some cause, as in organic diseases of the heart, of the respiratory organs, and ailments from cardiac enervation, the equilibrium be destroyed, the foramen performs a very important part. The repeated action of these causes, compelling the blood frequently to go the reverse way, keeps the orifice open, and to this cause may be attributed the non-obliteration of the foramen ovale in the majority of cases.—(“*London Med. Rec.*,” June, 1874, p. 370.)

Suffocation from Regurgitation of Food in Infants.—Dr. Parrot mentions several cases of death in infants from regurgitation of food and its introduction into the respiratory tubes, and cautions of the danger of putting infants on their back immediately after feeding, as regurgitation and efforts of vomiting arising during sleep derange the pharyngo-laryngeal functions and result in the penetration of food into the respiratory tubes, and consequently produce a fatal suffocation.—(“*Union Médicale*,” August, 1874, p. 207.)

DIAGNOSIS.

Thermometric Signs in Infantile Tuberculosis.—Dr. J. Grangé refers to the diagnostic value of the thermometer in infantile tuberculosis. He finds in pulmonary phthisis as a characteristic sign, amplitude of daily oscillations and great differences in the degree of the morning and evening temperatures. In peritoneal tubercles the elevation of temperature is very slight, and in tubercular meningitis generally very low, and more so whenever there is marked cerebral depression.—(“*Rev. des Sciences Méd.*,” 1874, p. 193.)

Phonometric Examination of the Chest.—Dr. J. Grasset says that phonometry means the study of the modification of the sound produced by a vibrating diapason applied to various parts of the body, corresponding with the healthy or diseased organ. This new method of examination was first introduced by Drs. Baas and Guttman, who believe that the results obtained by this method are identical with those obtained by percussion. But Dr. Grasset concludes from his researches that the results of the two methods are not the same, and that phonometry will become a valuable additional aid in diagnosis. A phonometric

examination gives an accurate account of the thoracic vibrations in cases where, for various reasons, they are scarcely perceptible (such as in cases of general extreme feebleness, in aphonia, in hoarseness, &c.); and another advantage is gained by the fact that the thoracic vibrations, being subjective phenomena, with the aid of the phonometer, can easily be demonstrated to a number of persons.—(*"Union Médicale,"* Feb., 1875, pp. 235, 236.)

Pathognomic Sign of Pulmonary Apoplexy.—Dr. N. Gueneau de Mussy in his "*Clinical Lectures*," mentions a remarkable sign of pulmonary apoplexy, viz.: a peculiar odour of the breath, acid and alliaceous, and resembling somewhat the smell of a tincture of horse-radish.—(*"London Med. Rec.,"* April, 1875, p. 218.)

New Diagnostic Sign of Aneurism.—Dr. Laboulbène reports several cases of aneurism of the aorta in which he observed the subclavian arteries pulsating above the clavicles. The postmortem examination explained this elevated position of the subclavian arteries, as the aorta was found to be dilated cylindrically near its origin and elongated in its continuation up to its brachio-cephalic divisions.—(*"Bulletin de l'Académie de Médecine,"* Dec., 1874, p. 1192.)

Dr. Faure observed (*"Archives Générales"*) in cases of superior aortic aneurism a peculiar pulsation in the carotid region and at the base of the neck; on slight compression a double vibratory tremor, and, on auscultation, a double blowing murmur were noticed. If the aortic dilatation be equal over all parts whence the great vessels are given off, the above-mentioned phenomena will be observed equally on both sides of the neck; if only partial, they will be noticed on the affected side only.—(*"London Med. Rec.,"* June, 1874, p. 357.)

Pulsation in the Optic Disc associated with Heart-disease.—Dr. Grandclement (*"Lyon Médical,"* June 7, 1874) has verified the observations of Becker as to pulsation of the retinal artery accompanying heart-disease, and explains this phenomenon as due to a want of harmony between the intra-ocular and the intra-vascular tensions in the arteries of the optic disc.—(*"London Med. Rec.,"* Aug., 1874, p. 538.)

Diagnostic Signs of Cancer of the Lungs.—Dr. Woillez relates a case of multiple cancerous tumour of the lungs in a washerwoman, aged thirty-eight, and mentions especially as important diagnostic signs:—

1. Hæmoptoic sputa, having resemblance to currant-jelly.
2. Frequent changes in the signs of percussion and auscultation, such as dulness, tympanism, râles, bruits, etc.—(*"Union Médicale,"* Oct., 1874, pp. 577-583.)

PATHOLOGY AND MORBID ANATOMY.

Pulmonary Tuberculosis, a Sequel in Acute Pleurisy.—Dr. Buequoy frequently noticed the appearance of tubercles in the lungs after pleurisy, and accounts for this fact by the debilitating effects of a pleuritic attack, and of the treatment adopted for this disease. He strongly advocates early thoracentesis to prevent tubercular disease during convalescence.—("Gazette Hebdom.," July, 1874, p. 476.)

Nature and Treatment of Pulmonary Phthisis.—In reviewing a treatise by Dr. L. Boyer ("Considérations Nouvelles sur le Traitement de la Phthisie Pulmonaire," Paris, 1875), the following extracts are of importance: The lymphatic system is the chief agent of nutrition. The connective tissue being the soil for nutrition and support of vegetative life, is also the seat of tuberculisation, which consists in the production of morbid, incomplete cells, which develop in place of the normal cells, replacing and destroying the latter. The tubercular cells have their histological representatives in the normal cells of the lymphatic ganglia. Amongst the most powerful agents exercising their power on the lymphatic system, Dr. Boyer selects iodine, in the form of iodised milk, and recommends it, with the mineral waters of Mont-Dore, as a rational and efficient treatment in pulmonary phthisis.—("Union Médicale," March, 1875, p. 392.)

Phthisis, a Clinical Study.—In an elaborate essay on phthisis, Dr. E. Metzquer expresses his views as to this disease not having a specific, inoculable and contagious character, but being an affection due to mal-nutrition.—("Rev. des Sciences Méd.," Vol. iv., 1874, p. 470.)

Curability of Pulmonary Consumption.—Dr. Jules Boyer strongly recommends, in cases of pulmonary phthisis, with a view of assisting the calcification of tubercles and tuberculous cavities, the administration of his salino-calcary powder, consisting of phosphate and carbonate of lime and of bicarbonate of soda.—("Phthisie Pulmonaire" by Dr. Jules Boyer. Paris, 1874.)

Infantile Tuberculosis.—Dr. J. Grangé's pamphlet is based on practical observations, and contains, amongst others, the following noteworthy passages:—

1. Phthisis contributes one-third to the total general mortality.
2. In a hundred cases of infantile tuberculosis there are eighty-one deaths.
3. The thorax of tubercular children is always narrower than that of healthy children of the same age.
4. Asthma in children is often a symptom of tubercles in the bronchial ganglia.

5. Tubercles within the larynx are rarely observed in children, but tuberculous glands compressing the larynx, trachea or bronchi are of frequent occurrence.

6. Slight œdema near the ankles of the feet shows itself generally in the later period of the disease.

7. Profuse perspiration accompanied by sudamina is a sign of existing caverns, but the hectic sweats have no relation to the diarrhoea, as is the case with adults.

8. Flushing of one cheek is observed in cases of one lung (generally of the same side) being affected; both cheeks are flushed alike when both lungs are found to be tuberculous.—(*"Des Symptômes de la Tuberculisation chez les Enfants,"* by Dr. J. Grangé, Paris, 1874.)

Particular Form of Pulmonary Phthisis.—Dr. Perroud refers to a particular form of pulmonary phthisis, as observed by him in oarsmen and sailors on the river Rhone. It is a chronic affection of slow course, localised in the subclavicular region of the right lung, and due to repeated pressure on this place by the boat-hook they use to keep their boats in motion.—(*"Gazette Hebdom.,"* Nov., 1874, p. 593.)

Aneurisms in Pulmonary Caverns.—From a paper in the *Progrès Médical*, is the following resumé:—

The ramifications of the pulmonary artery in the walls of phthisical cavities, are generally obliterated. But there are cases in which these small arteries become dilated and form small aneurisms within the cavities, and become the source of sudden profuse hæmorrhages in the advanced stages of phthisis.—(*"London Med. Rec.,"* July, 1874, p. 469.)

Otitis in Phthisis.—The conclusions arrived at by Dr. de la Bellière, from his investigation of otitis in phthisical patients, are:—

1. There exists no tuberculous affection in the os petrosum.

2. Otitis in phthisis is nothing else but a simple catarrh of the cavity of the drum complicated with caries or necrosis, in consequence of an ulceration of its mucous membrane, which is also its periosteum.

3. Otitis is always consecutive to a catarrhal affection of the pharynx, propagated by way of the Eustachian tube to the cavity of the drum.—(*"Gazette Hebdom.,"* Nov., 1874, p. 757.)

Transfer of Tubercles from Cows to Cats.—Dr. Chauveau reports the experiments made by Dr. Viseur, who fed young cats once a week with tubercular lungs of diseased cows, and who found, after three weeks, tubercles in all the organs of the cats.—(*"Mediz. Neuigk.,"* Erlangen, December, 1874, p. 416.)

Tubercles in Birds.—Dr. O. Larcher observes that tubercles are frequently found in the hearts of birds (Gallinaceous, Grallatory, &c.) in the form of numerous isolated nodules, or in that of a large tumour,

but in all cases the tuberculisation is not limited to the heart alone, but is generally spread over various organs.—(*"Mélanges de Pathologie Comparée,"* by Dr. O. Larcher, Paris, 1874, pp. 93, 94.)

Pneumonia Caseosa Lobaris Acuta.—From a contribution to the clinical history of this malady, by Dr. Chouppe, may be extracted a condensed summary:—

1. Abuse of alcoholic drinks, the puerperal state, Bright's disease or diabetes may rank amongst the adjuvant causes of cheesy pneumonia.

2. The course of the malady runs through three stages:—

a. The first stage is characterised by short daily shivers, with irregular fever reaching its height in the evening or soon after the shivers, feebleness, a dry cough, bronchial and subcrepitant râles, and later on crepitation. This stage lasts several weeks or months.

b. Second stage of cheesification: irregular fever; small and feeble pulse; stupor, dizziness, noises in the ears, hallucinations, frequently a calm delirium; waste in the muscles of the thorax; troublesome cough, sero-purulent, greenish-white sputa; dyspnoea; pain in various parts of the thorax; slight dulness on percussion; rough and tubular breathing; great weakness. Its course is very slow.

c. Third stage: Softening of the cheesy masses and formation of cavities. General symptoms aggravate; high fever, delirium, disorders of the digestive organs, great prostration; marked dulness on percussion, cavernous or amphoric breathing; intense dyspnoea; sputa purulent, and containing debris of fibro-elastic tissue; death from asphyxia or exhaustion.—(*"Rev. des Sciences Méd.,"* Vol. iv., 1874, pp. 512-515.)

Pneumonia Herpetica.—Dr. Lagout gives this name to a form of pneumonia, with symptoms of angina pectoris without secondary fever of a suppurative stage, and all ending favourably in three or four days, being the manifestation on the mucous membrane of the aërial tubes of its primitive element, herpes labiales, during a fever of elimination. He further states: there are no essential pneumonias, but they are all due to the localisation in the lungs of a morbid eruptive element, and ought to be specified as pneumonias of erysipelas, of herpes, of measles, etc.—(*"Union Méd.,"* Jan., 1875, pp. 88, 89.)

Pulmonary Lymphangitis.—Dr. Troisier proved by experiments the connection between the pleural cavity and the pulmonary lymphatic vessels. He further describes cancerous lymphangitis (showing the transmission of cancer by the lymphatics) and other forms, such as: adenomatous, tuberculous, simple and purulent lymphangitis.—(*"London Med. Rec.,"* Nov., 1874, p. 695.)

Dr. Cornil considers that the pathological characteristics of lymphangitis pulmonum, viz.: increase of endothelial cells, and cheesy degeneration of the lymphatic cells, are always the same in acute as in

chronic cases, as well as in those of a cancerous, tubercular or syphilitic nature.—("Rev. des Sciences Méd.," Vol. iv., 1874, p. 485.)

Bronchial Adenopathy.—Dr. Lereboullet ("Gaz. Hebdom.," Oct. 16, 1874) draws attention to the following signs of hypertrophy of the bronchial glands:—

1. Physical signs: inter-scapular or pre-sternal dulness; feeble respiratory bruit with bronchial respiration and increased reverberation of the voice and cough.

2. Functional symptoms: dyspnoea; a hoarse, paroxysmal cough with sero-spumous expectoration; changes in the voice; vomiting; oedema and puffiness of the face.

As to the treatment he recommends: tincture of iodine, externally and internally; large doses of arsenic and belladonna; revulsives to the epigastrium or along the track of the pneumogastric nerves, when vomiting or dyspnoea appear.—("London Med. Rec.," Jan., 1875, p. 53.)

Angioleucites Pulmonum.—Dr. M. Raynaud describes under this name a disease of the lungs, where there are to be found varicose swellings of all the lymphatics of the lungs, producing an obstinate cough; and he observed this as a complication in many cases of cancer of the stomach.—("Rev. des Sciences Méd.," Vol. iv., 1874, pp. 87 and 88.)

Anthraxis, or Pneumoconiosis Anthracosica.—Dr. A. Proust (Academy of Med.) adopts this name, given by Dr. Zenker, to a pathological condition of the lungs, due to the inhalation of coal-dust, and deduces the following conclusions from a case observed by himself.

1. It is possible for coal-dust to penetrate into the pulmonary parenchyma.

2. By accumulating in the connective interalveolar tissue hyperplasia of this tissue is induced.

3. The connective tissue softens, and cavities are produced which are filled with a blackish pulp, but do not contain pus or any other pathological substance.

4. Those cavities that have no communication with the bronchial tubes may remain for years latent without manifesting serious disturbances.—("Bulletin de l'Académie de Médecine," July, 1874, p. 624.)

In analysing the effects of coal-inhalations by miners and copper-workers, Dr. Proust remarks that the substitution of fecula for coal-refuse would considerably diminish the frequency of cases of anthracosis amongst copper-moulders.—("London Med. Rec.," Dec., 1874, p. 781.)

Analysis of Pleuritic Effusion.—Dr. Méhu ("Archives Gén. de Méd.") concludes, from his analysis of the physical and chemical qualities of the liquids effused in the pleura, that the amount of mineral salts is independent of the quantity of albuminous mat-

ters, and that each kilogramme of liquid contains 7·5 to 9 grammes of salts. Fibrine is especially present in acute pleurisy, and in cases of effusion depending on cardiac obstruction, but is absent in purulent liquids, or in effusions due to tubercle, cancer, etc. The probability of cure is in direct ratio to the amount of fibrine.—("London Med. Rec.," July, 1874, p. 469.)

Primary Lesions of the Encephalon and Consecutive Lesions of the Lungs.—In a paper read before the Parisian Society of Biology, Dr. Nothnagel sums up his experiments:—"When a certain tract of the upper surface of the brain of a rabbit, in the vicinity of the superior fissure there situated, is wounded, interstitial pulmonary hæmorrhages ensue, often so abundant as to fill the entire lung." Brown-Séquard observed the same effect after lesion of the base. Baréty and Ollivier relate cases illustrating the above views. The first mentions a case of meningeal hæmorrhage filling the convex surface of the right hemisphere with congestion and subpleural and parenchymatous apoplexy of the left lung. The second observed a case of hæmorrhage of the right corpus striatum, with ventricular effusion and hæmorrhage in the pons varolii complicated with pulmonary congestion.—("London Med. Rec.," June, 1874, p. 339.)

Congenital Lesions of the Heart.—Dr. Daniel holds that in the production of cyanosis a narrowing of the pulmonary orifice plays an important part; and his conclusions are:—Congenital narrowing of the pulmonary artery is always complicated with interventricular communication; in such cases, cyanosis exists already in the newborn child. These congenital lesions of the heart are compatible with a long duration of life, but frequently end in fatal convulsions.—("Etude sur les Lésions Congenitales de l'Artère Pulmonaire," by Dr. Daniel; Thèse de Paris, 1874.)

Pericarditis Sicca.—Dr. Lesonneur communicates his ideas on dry pericarditis, as observed in the Clinique of Rouen.

1. This form of pericarditis is always a secondary affection, accompanying generally serious diseases of the respiratory organs or of the heart.

2. The pericardium is covered with soft gelatinous membranes, but there is no effusion present.

3. There are no general symptoms; a bruit of friction is heard on auscultation.

4. The prognostic is very grave, owing to the complications.—("Rev. des Sciences Méd.," Vol. iv., 1874, p. 518.)

Endocarditis Ulcerosa.—Dr. Lancereaux distinguishes two forms of endocarditis: the sclerotic form in rheumatism, and the ulcerative form in diphtheria, scarlatina, and pyæmia. He observed cases of the latter after ague. He noticed in the ulcers molecular granulations and little rods resembling vibriones, and considers these to

be true ferments. There is a double murmur at the base of the heart and enlarged spleen. For treatment, he recommends tonics and antiseptics.—("Mediz. Neuigk.," Erlangen, July, 1874, p. 209.)

Dr. Hirtz ("Progrès Médicales," p. 413,) relates a case of phlegmonous periostitis in the thigh of a girl, aged eight, and the necropsy showed three small ash-grey ulcerations, surrounded by a red zone just below the aortic valves.—("London Med. Rec.," Oct., 1874, p. 632.)

Symptomatic Myocarditis in Malarial Fevers.—Dr. Vallin ("Union Médicale," June 23, 1874) observed in severe malarial fevers a disintegration of the muscular tissues of the heart and voluntary muscles. These histological alterations explain the condition of excessive muscular debility, with dull pains in the limbs, the infrequency of the pulse during convalescence, and the anæmic bruits observed in patients suffering from malarial fevers.—("London Med. Rec.," Aug., 1874, p. 531.)

CLINICAL MEDICINE.

Glossitis Acuta.—Dr. Pellier relates two cases of acute inflammation of the tongue with no participation of any other part of the cavities of the mouth or pharynx. The symptoms were increased salivation, pain and swelling of the tongue, interfering considerably with swallowing and deglutition. Both patients recovered in a few days, and leeches had to be applied in one case.—("Mediz. Neuigk.," Erlangen, March, 1875, p. 86.)

Lymphadinoma.—In communicating a case of lymphadinoma in the anterior mediastinum, Dr. Pasturaud draws attention to the symptoms during life: feebleness of the heart-sounds; dyspnœa increasing on assuming a dorsal position; œdema in the upper parts of the trunk.—("Rev. des Sciences Méd.," Vol. iv., 1874, p. 496.)

Tubercular Ulcers of the Tongue.—Dr. Laboulbène mentions a case of tubercular ulcers in a healthy man, cured speedily with the topical application of iodine tincture, but who soon returned to the hospital with tubercular disease of the lungs, the tongue presenting no traces of ulceration. Dr. Laboulbène further states that he frequently met with tubercles in the testicles of healthy persons, and on their disappearance he observed the development of pulmonary tuberculosis.—("Gazette Hebdom.," July, 1874, p. 482.)

Tuberculous Ulcer of the Anus in a Phthisical Patient.—Dr. Martineau ("Union Médicale," July, 1874) relates the case of a patient suffering from pulmonary phthisis and tubercular ulceration of the fauces and larynx, exhibiting also characteristic tuberculous ulceration of the anus; and surrounding the ulcer and on both buttocks

from eight to ten prominent and not painful tubercles.—("London Med. Rec.," Sept., 1874, p. 602.)

Pulmonary Cancer.—Dr. de Valcourt, of Cannes, reports a case of cancer of the lung, and remarks:

1. The right lung only was affected with the disease, whilst the left lung remained quite healthy.

2. The cause of death was a flattening of one of the bifurcations of the trachea from compression by a cancerous ganglion.—("Union Médicale," Nov., 1874, pp. 723, 724.)

Endocarditis Primitiva, of a Vegetative Form.—Dr. Blachez reports a case of a washerwoman, aged 53, who, having always enjoyed good health, was suddenly seized with febrile symptoms and pain in the left side of the chest and subcrepitant râles, and three weeks later could be heard near the apex of the heart a systolic bruit, increasing daily in intensity. On the 37th day of her illness she died suddenly. Postmortem examination: No pericarditis; heart of normal size; on the right mitral valve a cauliflower excrescence, firmly adherent to its auricular surface. This excrescence was interspersed with small blood-vessels, which anastomosed with the dilated vessels of the valve; these vascular parts being covered by masses of fibrine. In the ventricles there were several patches consisting of pure fibrine, occupying the deep layer of the endocardium.—("Union Médicale," Jan., 1875, p. 22.)

Perinephritic Abscess, opening into the Bronchi: Recovery.—Dr. A. Gondouin reports a case of a tailor, aged 26, who suffered from an abscess in the right lumbar region, owing to a fall and to dampness of his dwelling-house. Two years after his fall he was suddenly attacked with sickness, great pain in the right side, suffocating cough, and purulent expectoration; the cough and expectoration continued for eleven days, and then ceased, the patient making, from that time, a speedy recovery.—("Union Médicale," Nov., 1874, pp. 664-667.)

Abscess in the Mediastinum, opening into Right Bronchus and Left Auricle; Death.—A case is reported by Dr. Bussard of a man, aged 24, who at first complained of gastric uneasiness, shivers, prostration, with high temperature, and icteric appearance; but these symptoms were soon followed by others: a bruit of the first sound heard at the base of the heart, but not in the aorta; cough, dyspnoea, gangrenous sputa (containing no elastic fibres); repeated hæmoptysis; and death occurring after considerable pulmonary hæmorrhage. Postmortem: an abscess was found near the bifurcation of the trachea and above the left auricle, and opening into the latter and into the right bronchus; a slight perforation of the œsophagus in the level of the abscess appears to suggest the cause to have been the stoppage of a foreign body (such as the bone of a fish) in the œsophagus.—("Gazette Hebdom.," July, 1874, p. 459.)

Liver Abscess with Signs of Hydro-pneumothorax.—Dr. Rigal reports a very instructive case of suppurative perihepatitis, with a large abscess situated between the abdominal part of the diaphragm and the upper surface of the liver, and presenting all signs of hydro-pneumothorax. The diagnostic difficulties were due :

a. To the presence of gases in the cavity of the abscess that gave a tympanitic sound on percussion of the base of the thorax ;

b. To the adherences of the liver fixing that organ, and making it impossible to detect the subdiaphragmatic accumulation of pus ;

c. To the equal tumefaction of both hypochondriacal regions, making it difficult to localise the disease ;

d. To the concurrent exceptional circumstances simulating the usual symptoms of hydro-pneumothorax, such as amphoric bronchial souffle, tinnitus metallicus, and the sound of fluctuation.—(“*Union Médicale*,” Nov., 1874, pp. 699-701.)

SURGERY.

Buccal Lipoma.—Dr. Labat (“*Thèses de Paris*,” 1874) collected thirty-two cases of lipomata situated under the mucous membrane in various parts of the cavity of the mouth. They are of a transparent yellowish colour and very soft to the touch, and can easily be extirpated.—(“*London Med. Rec.*,” April, 1875, p. 227.)

Sarcoma of the Right Vocal Cord.—Drs. Raymond and Longuet communicate the case of a patient who had been twice operated with temporary relief for a sarcomatous tumour of the right vocal cord, causing aphonia and respiratory troubles, and who, twelve months after he first noticed the tumour, died suddenly with symptoms of cerebral congestion.—(“*Rev. des Sciences Méd.*,” Vol. iv., 1874, p. 495.)

Tracheotomy in Diphtheria.—The following new method is recommended by Dr. de Saint Germain : A button-pointed bistoury is used red-hot to burn through the skin and crico-thyroid membrane, and on reaching the inside of the larynx, the sharp edge of the bistoury divides the cricoid cartilage and a few tracheal rings ; the canule is then introduced with the aid of Laborde’s dilatator ; the loss of blood is thereby reduced to a minimum.—(“*Mediz. Neuigk.*,” Erlangen, July, 1874, p. 224.)

Pyopneumothorax cured by Thoracentesis and Injections of Camphorated Alcohol.—Dr. Abeille reports the case of a girl, aged 14, suffering from chronic left pleurisy with purulent effusion and pneumothorax, successfully treated by thoracentesis and subsequent repeated washing out of the cavity, at first by spirits of camphor, then by tincture of arnica, and lastly by diluted alcohol. These injections were continued twice a day during twelve months.—(“*Bulletin de l’Académie de Médecine*,” June, 1874, p. 528.)

Electro-puncture of the Heart.—Dr. Vulpian concludes from his experiments on dogs, that electricity, interrupted as well as continuous currents, when applied by means of two needles introduced into the cardiac muscle, leads to a complete arrest of the heart's action, and, therefore, he considers electro-puncture to be a dangerous operation.

MATERIA MEDICA AND THERAPEUTICS.

Apomorphia.—Professor Oberlen, of Nancy, describes it as a greyish amorphous powder, possessing a powerful emetic action, without causing nausea or depression; it is best preserved in a solution of simple syrup.

Dr. C. David gives apomorphia as an emetic in doses of gr. $\frac{1}{20}$ — $\frac{1}{16}$, and remarks that an atmosphere surcharged with oxygen counteracts the effects of this drug.—(“Rev. des Sciences Méd.,” May, 1875, p. 78.)

Drs. Carville and Raymond recommend the subcutaneous injections of apomorphia solution, in one-grain doses, as a safe and rapid emetic in cases of poisoning, asphyxia of the drowned, angina pectoris, and in pulmonary congestion of children.—(“Union Médicale,” July, 1874, p. 63.)

Soluble Arseniate of Iron.—Mr. A. Clermont prepared this salt from protoxyde of iron and arsenious acid, and dissolved it in syrup, every teaspoonful containing one milligramme ($\frac{1}{80}$ grain) of the salt. He especially recommends its use in pulmonary phthisis, in asthma, and in pertussis, in doses varying from one to two tablespoonfuls a day.—(“Union Médicale,” Feb., 1875, pp. 178-181.)

Emetin.—Dr. d'Ornellas, among other effects of emetin, mentions the fact, that when given in small doses insufficient to produce vomiting, emetin lowers the respiration, circulation, and temperature.—(“De l'Action Physiologique de l'Emétine,” par d'Ornellas, Paris, 1874.)

Nitrite of Amyl.—Nitrite of amyl inhalations (2 drops) accelerate the heart-beats, and cause flushing in the face as long as the inhalation is continued. Nitrite of amyl has been employed therapeutically in angina pectoris, asystole, lipothymia, etc.—(“London Med. Rec.,” June, 1874, p. 343.)

Bromide of Camphor.—Dr. Bourneville concludes from his experiments that bromide of camphor has the effect of lowering the circulation, the respiration, and the temperature, and recommends its use in doses from two to five grains in cases of nervous palpitation, hysteria, spasm of the glottis, pertussis, and dyspnœa.—(“Union Méd.,” Oct., 1874, pp. 642-644.)

Jaborandi.—Dr. Rabuteau analysed the leaves and found them to contain a bitter substance soluble in water and in alcohol, but no alkaloid whatever; their odour is due to a volatile substance.

Dr. Rabuteau studied the physiological effects on himself, and says that he never met with a more powerful sudorific and sialogogue combined. ("Rev. des Sciences Méd.," Vol. iv., 1874, p. 232.)

Dr. Gubler having tried this drug (leaves of a shrub, growing in Brazils, and brought to Europe in November, 1873,) at the Beaujon Hospital, reports that it has always acted as a powerful diaphoretic and sialogogue. Very soon after it is administered, the sweat rolls down the face and the whole surface of the body, and the saliva flows in abundance; at the same time the bronchial secretion has been observed to increase, and in a few cases diarrhœa supervened. The form of administration is from four to six grammes of the leaves in a cup of warm or cold water.—(*Ibid.*)

Dr. Robin's researches ("Bulletin Gén. de Thérapeutique," November 30, 1874) on the effects of jaborandi leaves, in one drachm doses in the form of an infusion, lead him to think that this drug has a special paralysing action on the vaso-motor nerves, and thus produces cardiac asystolia and increased secretions of saliva and sweat. Given in fractional doses it acts as a powerful diuretic only.—("London Med. Rec.," Dec., 1874, p. 794.)

Dr. Czernicky ("Gaz. Hebdom.," April 2, 1875) considers the sialogogue effects of jaborandi to exceed its sudorific powers, and reports a case of mumps, complicated with metastatic orchitis, cured in twenty-four hours after one dose of jaborandi.—(*Ibid.*, April, 1875, p. 227.)

Dr. Créquy ("Bulletin Gén. de Thérapeutique," March 30, 1875) relates a case of pleurisy cured by jaborandi in doses of 75 grains repeated eight times during a fortnight.

Dr. Dujardin Beaunetz finds that enemata of jaborandi produce salivation and perspiration without inducing vomiting. He lately used with advantage in a case of uræmia subcutaneous injections of jaborandi, concentrating into 15 minims of liquid the infusion of 45 grains of the leaves.—(*Ibid.*, April, 1875, p. 246.)

Collodion in Inflammation of the Glands of the Neck.—Dr. Fournié recommends the local application of several layers of collodion in acute inflammation of the superficial glands of the neck.—("Médizin. Neuigk.," Erlangen, Feb., 1875, p. 48.)

Treatment of Pertussis.—Dr. Greslon ("La France Médicale," April 3, 1875) reports the case of a child, aged eight, suffering for six weeks from severe whooping-cough, cured in fifteen days by chloral hydrate, in doses of 15 to 30 grains repeated every night.—("London Med. Rec.," April, 1875, p. 245.)

Having in view the intermittent character of the paroxysms in whooping-cough, and its being a mixed catarrhal and nervous affection, Dr. H. de Chegoïn recommends the administration of sulphate of quinine, and the application to the sides of the larynx of

blisters, and subsequent covering the blistered surface with 1-14th grain or less of sulphate of morphia.—("Union Méd.," Nov., 1874, p. 731.)

M. Max. Legrand ("Union Médicale," Oct. 8, 1874) mentions the successful treatment of whooping-cough by sulphur vapour-baths, as practised by Parisot, at the Hospital St. Charles, at Nancy.—("London Med. Rec.," Oct., 1874, p. 687.)

Dr. J. Mascarel, drawing attention to the combined catarrhal and nervous character of whooping-cough, recommends the following treatment:—

1. Every morning a teaspoonful of a weak solution of tartrate of antimony in water;

2. During the day, every three or four hours a mixture containing morphia syrup, ether and cherry-laurel-water.

3. At bed-time extract of belladonna, commencing with 1 ctgrm., and increasing gradually to 6 or 7 ctgrm.

He found this treatment to subdue even the most obstinate cases within a month.—("Annali Universali di Medicina," Milano, March, 1875, pp. 589, 590.)

Treatment of Pulmonary Phthisis.—Prof. Behier ("Bulletin de Thérapeutique," Nov. 30, 1874), in speaking of the importance of prophylaxis, remarks that extremes should be avoided in hygiene and dietetics. He says:—"Seek a moderate temperature, prescribe open air when it is mild and without abrupt changes; let the diet be mixed, do not overload the stomach, and avoid acids, hard and raw food, excess of fruit and every aliment which disagrees with the patient; drink wine or brandy in moderation; use no tobacco, and beware of excess in venery and masturbation; avoid late hours, as all excessive expenditure of force is injurious, and a sufficiently prolonged and reparative sleep is very beneficial." With regard to remedies he singles out tartar emetic as only efficacious in combating complications such as bronchitis, catarrh, and pulmonary congestion.—("London Med. Rec.," Dec., 1874, p. 817.)

Arsenic in Heart Affections.—Dr. S. Bouyer relates five cases of heart-disease, greatly benefited by the internal administration of powdered arseniated milk in doses of two drachms given twice a day. This preparation is derived from the combination of arsenious acid with the salts of the serum lactis. He further remarks that this preparation acts as a sedative, by calming the action of the heart, and at the same time it improves the nutrition of the cardiac muscle.—("Annali Universali di Medicina e Chirurgia," Milano, May, 1875, p. 301.)

Ipecacuanha Enemata in Phthisical Diarrhœa.—Dr. Boudon ("Bulletin Gén. de Thérapeutique," June 15, 1872) has tried successfully a decoction of ipecacuanha (rad. ipecacuanhæ gr. 308 coque cum aqua

3xviii ad decoct. 3vj.) used as an enema in case of diarrhœa in phthisical patients.—("London Med. Rec.," Aug., 1874, p. 503.)

Ipecacuanha and its Effects.—Dr. Polichronie ("Thèse de Paris," 1874) says that the action of ipecacuanha is due to its alkaloid—emetin. He finds the injections of ipecacuanha very useful in diarrhœa, and also in profuse perspiration of phthisis. He thinks that in diarrhœa emetin acts by producing an inflammatory state of the gastro-intestinal mucous membrane which counteracts the pathological inflammation; and in profuse perspiration it also acts by the revulsive effect on the digestive tube, or by being eliminated in the sweat-glands, it dries up their secretion.—("London Med. Rec.," Jan., 1875, p. 59.)

Transfusion in Extreme Anæmia.—M. Behier ("Bulletin Gén. de Thérapeutique," March 15th and 30th, 1874) mentions a case of profuse metrorrhagia, causing extreme anæmia, and which was completely cured by the operation of transfused normal venous blood. The instrument used was the Moncoq Mathieu Hæmatophore.—("London Med. Rec.," Sept., 1874, p. 569.)

Treatment of Œdema and Anasarca in Cardiac Affections.—Professor Sée prescribes, with good results, the following treatment:—

R. Extract. scillæ, gr. 15; pulv. rad. scillæ, gr. 1½; m. f. pil. x; S. six to ten pills a day.

R. Potassii bromidi, gr. 60 to gr. 75 per day.

The combined action of these drugs effects a speedy disappearance of the œdema and anasarca in heart-disease.—("Union Médicale," Nov., 1874, p. 784.)

Hypodermic Use of Morphia in Dyspnœa.—Dr. A. Renault recommends the subcutaneous injection of hydrochlorate of morphia (one part to fifty parts of water) into the thorax, as giving great relief in dyspnœa. ("Rev. des Sciences Méd.," May, 1875, p. 234.)

Spray-Inhalations.—Dr. Jules Guérin thinks that the feeling of suffocation and dyspnœa, frequently accompanying the use of spray-inhalations, is due to their producing a rarefaction of the air in the bronchial tubes, and consequently an accumulation of mucous discharge in the trachea.

Dr. Poggiale demonstrated clearly on animals, and in the case of a lady with a tracheal fistula, that the spray of inhaled liquids reaches the bronchial tubes, a fact hitherto denied by Pidoux and Durant-Fardel.

Dr. Poggiale also shows that by inhaling the spray of mineral waters containing sulphurous acid, a great portion of that acid is lost before entering the throat, whilst in such waters as contain sulphurated sodium no waste of the latter is effected by the spray.—("Rev. des Sciences Méd.," Vol. iv., 1874, p. 230.)

Aero-Therapeutics.—Dr. Labadie-Lagrave describes a new portable

pneumatic apparatus for the treatment of diseases of the respiratory passages, and writing on the effects of compressed and of rarefied air, he says :—

“Dr. Waldenburg studies the mechanical action of his apparatus on the heart and circulation. We know in physiology that the respiratory machinery exercises a manifest influence on the circulation (aspiration of venous blood, diminution of aortic pressure, etc.)”

In building upon these physiological principles, the author arrives at the conclusion that his pneumatic apparatus can be employed in four different ways :

1. Inspiration of compressed air.—Under this aero-therapeutic process the intra-pulmonary pressure is increased, and the effects on the circulation are the following :

- a.* Elevation of the pressure in the aortic system ;
- b.* Augmentation of the afflux of blood in the aortic system (the pulse becomes hard, tense, and fuller.)
- c.* The afflux of venous blood in the right heart is for a moment suspended (the jugular veins are distended and turgescient.)
- d.* The issue of blood out of the left cavities is rendered more easy and determines a greater afflux of blood in the great circulation on the one hand, and a correspondent diminution in the pulmonary circulation.
- e.* As to the frequency of the pulse, it is a little modified ; usually the pulse appears considerably slackened.

2. Expiration in compressed air.—In this second case all the preceding effects are manifested in a higher degree. The pressure in the aortic system is higher, the pulse becomes hard and tense, etc.

3. Inspiration of rarefied air.—The effects of such a method are diametrically opposed to those of the two preceding ones. Dr. Waldenburg has noted in a similar case a conspicuous lowering of the sphygmographic tracing during inspiration. He has also observed as follows :—

- a.* A notable diminution of the pressure in the aortic system, shown by the character of the pulse, which becomes softer and more compressible.
 - b.* An afflux of blood was considerable in the arterial circulation, as shown by the smallness of the pulse, which sometimes was almost filiform.
 - c.* A greater aspiration of the venous blood in the right heart (the jugular veins empty themselves easily and appear effaced.)
 - d.* The great circulation is discharged to the detriment of the lesser, which is filled beyond measure.
 - e.* The frequency of the pulse is difficult to note in consequence of its irregularity ; in general it is accelerated.
4. Expiration in rarefied air.—The results obtained by Dr. Waldenburg in this last case have appeared to him analogous to those that

we have just mentioned, but at the same time less marked. Therefore if we wish, by the aid of this last aero-therapeutic process, to obtain effects identical with the previous ones, it is necessary to carry the rarefaction of the air to a higher degree.

In a final chapter the author sets down the indications that can be drawn from the physiological action of this precious agent.

A. Indications for compressed air.—As a general proposition, Dr. Waldenburg gives the preference to inspiration rather than to expiration in compressed air.—This aero-therapeutic method appears to be indicated as follows:—

1. Whenever it is necessary to augment the contractile force of the heart and the consequent tension in the aortic system.

2. When it is desired to increase the degree of repletion in the great circulation.

3. Finally, when it is expedient to empty the little circulation and specially to combat the stagnation of blood in the lungs.

Consequently the employment of compressed air appears to him advantageous in all cardiac affections, when the reflux of blood in the left ventricle is impeded (insufficiency and stenosis, either mitral or aortic.)

In such a case the depletion of the lungs favours and augments the cardiac impulse, and thus the compressed air acts as a practical blood-letting on the little circulation.

In support of this assertion the author reports a clinical fact, which appears very conclusive.

Besides the diseases of the heart which we have just mentioned, can be placed certain pulmonary affections, such as: hæmoptysis; intense bronchial catarrh; phthisis, accompanied with vascular erethism (phthisis florida); and emphysema, with chronic bronchitis. In this last case Dr. Waldenburg makes his patients *inspire* compressed air from five to fifteen minutes, then *expire* in rarefied air; this last means appears to him to be solely indicated in emphysema.

The counter-indications of compressed air.—The employment of compressed air is counter-indicated whenever the blood-pressure is abnormally elevated in the aortic system, whenever the subjects present an apoplectic constitution, and appear by that alone to be predisposed to brain congestions; finally, when their arteries are atheromatous.

Expiration exclusively employed in compressed air ought in all cases to be avoided.

B. Indications for rarefied air.—It is above all to the inspiratory method that we should have recourse. This proceeding will be applicable whenever it is desired:—

1. To diminish the blood-pressure in the aortic system.

2. To diminish the afflux of blood in the arteries.

3. To augment the quantity of blood contained in the thoracic organs.

The effects of rarefied air may be compared to those that are produced by bleeding from the veins of the arm. Theoretically the affections of the right heart ought therefore to be profitably combated by the inspiration of rarefied air. But their rarity has not permitted Dr. Waldenburg to experiment upon this mode of treatment in such cases. In default of this he devotes an interesting paragraph to pulmonary phthisis, the development of which is, according to him, prevented by the opportune application of this method of therapeutics; but the data on which he bases this assertion are unhappily still too hypothetical for its being accepted without hesitation, if not without contest. However that may be, we cannot pass by in silence the arguments which serve as a basis to his therapeutic theory. He supposes, in principle, that the predisposition of the lungs to caseation is determined by an ischæmia (morbid retention of blood) of these organs. In fact, he says, the diseases of the heart which provoke passive congestions of the lungs, in opposing the return of the arterialised blood into the left auricle (stenosis and mitral insufficiency) create an almost certain immunity against pulmonary tuberculosis, whilst those that prevent the efflux of blood towards the lungs (stenosis of the pulmonary orifice) predispose to pulmonary phthisis. These facts being admitted, we could understand that the inspiration of rarefied air in augmenting the quantity of the blood in the little circulation, would be very advantageous in preventing the development of pulmonary tuberculosis, or in arresting its progress.

The efficacy of a visit to the mountains depends only on the rarefaction of the air, which acts in the same manner. In virtue of the same principle this mode of aero-therapeutics is equally applicable in dry pleurisy and in all affections which lead directly or indirectly to a compression of the lungs.

Counter-indications of Rarefied Air.—The employment of rarefied air is counter-indicated not only in cases of pulmonary hæmorrhages, but also when there is reason to fear the return of hæmoptysis. It is the same when acute pulmonary inflammation exists. Consequently this method is only applicable to pulmonary phthisis in the stages of commencement or regression, when all inflammatory action is extinguished or not yet developed. Moreover, the extreme weakness of the subjects constitutes a formal counter-indication to the employment of rarefied air, for the patients do not possess a muscular force sufficient to overcome, at each inspiration, the atmospheric pressure not overbalanced.

Expiration in rarefied air, which is very rarely put in use, presents on the whole the same counter-indications as the preceding method.

As a summary, it results from this interesting study that aero-therapeutics does not constitute an exclusive method, applicable to all cases

without distinction and without control; and we ought to thank Dr. Waldenburg for having tried to categorise, so to speak, the indications of this new agent, the effects of which have not been sufficiently determined until now, and which, let us say in concluding, differ not only according to the mode of administration, but also with the different apparatus made use of. Thus in the medico-pneumatic cabinets, the physiological effects of compressed air, for example, are quite different to those with portable machines. In the first, the whole body is submitted to the surcharge of atmospheric pressure, the compressed air exercises its action not only on the lung but also on the thoracic walls, and compresses not only the little circulation, but also the great; in fact, the action ought to be essentially different. Thus aero-therapeutics, as practised by the help of Dr. Waldenburg's portable pneumatic apparatus, constitutes an absolutely new method full of hopes and promises, but to which are still wanting the proof of time and the sanction of experience.—("Gaz. Hebdomadaire," Feb. 26, 1874.)

CLIMATOLOGY.

Sanitary Stations, South of France.—Sir A. Taylor ("Principes de Climatologie," etc., Pau, 1874) remarks that the climates of the South of France are either exciting or sedative. To the first-class belong Nice, Mentone, Cannes, Hyères, and Montpellier; and to the second, Pau. In selecting these places for patients their temperaments ought to be taken into account.—("London Med. Rec.," Aug., 1874, p. 523.)

Dax, a new Winter Thermal Establishment.—Dr. Sales-Girons recommends Dax as a very useful winter institution for pulmonary patients. There is a constant temperature of 59° to 68° in winter; tepid vapours moisten this warm atmosphere, nitrogen correcting its sharpness.—("London Med. Rec.," Jan., 1875, p. 42.)

Pau.—Dr. Cazenave de la Roche, speaking of the climate of Pau, remarks:—

1. It is essentially sedative in the generality of its effects.
2. It is suitable to all cases characterised by nervousness and erethism.
3. It is very useful in erethic phthisis, in peri-tuberculous bronchitis, in dry and nervous cough, and in cardiac asthma.
4. It is counter-indicated in cases of lymphatic, scrofulous, anæmic, chlorotic patients, in torpid phthisis and in its last stages, in senile catarrh, and in all such individuals as are predisposed to congestion, apoplexy, or who are afflicted with paralytic complaints.—(Answer to Dr. Williams by Dr. E. Cazenave de la Roche, Pau, 1875.)

Algiers.—Dr. Cazalas observes that although in Algiers there are more predisposing causes for chest diseases, the proportion of phthi-

cal cases is much lower than in France. The proportion of phthisis to all other chest-affections is in France 18 per cent., and in Algiers only 7.20 per cent. — ("Rev. des Sciences Méd.," Vol. iv., 1874, p. 242.)

Mountain Sanatoria.—Dr. Hirz considers the tonic effects of bracing mountain-air, even during the winter months, as beneficial to patients suffering from pulmonary phthisis. Nutrition and assimilation improve the general health and ameliorate the local symptoms. In the Alps he specially recommends Davos, St. Moritz, and Lamaden; in the Vosges of Alsace, Hohwald, Wangenburg, and Soultzmatt; in the Jura, Chaumont, Chateau, and Rang.—("Rev. des Sciences Méd. Vol. iv., 1874, pp. 614-616.)

MISCELLANEOUS.

Atmospheric Dust.—Dr. G. Tissandier analysed the dust of the air in Paris and found it to contain 25 to 34 per cent. of organic matter, and 75 to 66 per cent. of mineral ash; the latter contained a large quantity of iron, which he considers to be of cosmic origin.—("Annales de Chimie et de Physique," Vol. iii., p. 203.)

Sea-Bathing.—Dr. Gaudin ("Thèses de Paris," 1874) believes that the effects of sea-bathing are due to the revulsive properties of the sea-water and to the sea-air, and finds special indication in cases of secretory and respiratory anæmia, in some catarrhal pulmonary affections, in scrofula, and in rachitis.—("London Med. Rec.," Dec., 1874, p. 796.)

Mineral Waters.—Dr. Gubler, ("Journal de Thérapeutique," No. 10 et seq.) speaking of the French mineral waters, remarks: Anæmic patients, affected with bronchial catarrh, may profit by iron sulphur waters; and anæmia with gouty disposition may benefit by alkaline iron waters. Further, the saline iron waters in central France are specially beneficial to patients suffering from impoverishment of blood, allied to lymphatism and scrofula, with hereditary pre-disposition to tuberculosis.—("London Med. Rec.," Oct., 1874, p. 661.)

Artesian Wells.—Dr. Gerardin ("Academy of Sciences") finds that water obtained from subterranean wells does not contain oxygen if kept from contact with the atmosphere, but when in contact with air the water dissolves several cubic centimetres of oxygen.—("London Med. Rec.," July, 1874, p. 444.)

Respiration in Plants.—The effect of light is decomposition of carbonic acid by the leaves. Deherain and Moisson ("Academy of Sciences") noticed that in the dark the leaves absorb oxygen and emit carbonic acid in the same degree as cold-blooded animals, and that they continue to emit carbonic acid in an atmosphere

deprived of oxygen; at the same time heat is formed and utilised for the better growing of the plant.—("London Med. Rec.," Dec., 1874, p. 800.)

Medical Curiosity.—In the year 1647, Armand de Bautry, aged sixteen, exhibited symptoms of acute right pleurisy and a swelling near the fourth rib; on puncturing the same, there was discharged with the pus an entire spike of barleycorn, quite unchanged, which the patient had swallowed two months ago.—("Union Médicale," Paris, Aug. 6, 1874, p. 208.)

RUSSIA.

(Report by ADOLPHE WAHLTUCH, M.D.)

ANATOMY AND PHYSIOLOGY.

Absence of the Left Lobe of the Thyroid Gland.—Dr. Tschaussoff, of Moscow, relates the case of a child in whom the isthmus and left lobe of the thyroid gland were absent. The superior left thyroid artery anastomosed with the superior right thyroid, and gave origin to the crico-thyroid artery; the inferior left thyroid artery anastomosed with the inferior right thyroid below the cricoid cartilage. The left vertebral artery arose direct from the arch of the aorta, and entered the canal of the transverse apophyses near the fourth cervical vertebra.—(*"Courrier Médical de Moscou,"* 1874, No. 23.)

Physiological Effects of Air admitted into the Blood-vessels.—Drs. Kowaleffsky and Wyssotzky conclude from experiments made by them on dogs and cats as follows:—

a. Slow and gradual injections of air into the jugular veins are not injurious; there is at first increased, and then diminished, action of the heart, but soon the normal beat is re-established.

b. There is no embolism produced even when large quantities of air are injected, and much froth is formed in the right heart; but there is then more difficulty for the passage of the blood from the venæ cavæ into the right heart, and consequently less blood enters the left heart, and produces thereby arterial anæmia.

c. The introduction of large quantities of air into the vascular system may cause death by interfering with the entrance of blood into the heart, and thereby producing arterial cerebral anæmia.—(*"Mediz. Neuigk.,"* Erlangen, Aug., 1874, p. 241.)

Compressed Air and its Effects on the Blood-pressure.—Drs. Drosdoff and Botschetschkaroff conclude as follows from experiments made on dogs:—

1. Respiration in compressed air lowers the blood-pressure, not only under ordinary circumstances, but even after the section of the nervi vagi.

2. The physiological effect of the irritation of the peripheric section of the nervus vagus is less marked when compressed air is used.

3. No convulsions preceded the death of the animals killed by blood-

letting after the use of compressed air, whilst generally convulsions are observed in these animals even when they recover from the narcotic effects of opiates administered during the experiments.—(*"Mediz. Neuigk.,"* Erlangen, Feb., 1875, p. 42.)

Effects of Alimentation on the Blood.—Dr. Willebouchevitch concludes, from an observation made on a man suffering from obstruction of the œsophagus, and from experiments on dogs, that a pure vegetable diet increases the size and number of white corpuscles in the blood.—(*"Rev. des Sciences Méd.,"* Paris, May, 1875, p. 39.)

Physiological Effects of Blood-transfusion.—Dr. A. Jakowitzky thus sums up his experimental researches on blood-transfusion:—

1. The transfusion of blood taken from animals of the same species improves the functions of the animal experimented upon; but if the blood used be derived from a different species, it acts injuriously.

2. These injurious effects are solely due to the liquor sanguinis of the blood taken from a different species from the one operated upon.—(*"Mediz. Neuigk.,"* Erlangen, Dec., 1874, p. 390.)

Influence of the Sympathetic Vaso-motor Nerves on the Blood-current.—Dr. Slavjansky (*"Arbeiten aus der Phys. Anstalt zu Leipsig,"* 1874) concludes from his experiments made upon rabbits and dogs that the amount of blood passing through the heart is in a direct ratio to the degree of stimulation of the spinal cord, and also that the pressure in the aortic system rises with the increase of blood in the heart on stimulation of the spinal cord, *i.e.*, of the sympathetic vaso-motor nerves.—(*"London Med. Rec.,"* Sept., 1874, p. 562.)

Fat in the Milk of Healthy Women.—Dr. Schukowsky, of Moscow, analysed the milk in healthy women, one month after confinement, and found the constant proportion of fatty matter to be three per cent. This amount only changes in illness or when vegetable diet is substituted for animal food, in which latter case it becomes reduced to 0.86 per cent.—(*"Echo de la Presse Méd.,"* Paris, Oct., 1874, p. 79.)

ETIOLOGY.

Pulmonary Consumption.—Dr. C. F. Mayer, of St. Petersburg, discusses, in an elaborate treatise, the subject of consumption. He says pulmonary phthisis is nothing but catarrhal pneumonia with pus-formation in the lungs. This disease is to be found in all climates where there is overcrowding of the population, and it is rarely observed in the country, where the population is not so dense as in towns. Schools, prisons, etc., are the hot-beds of consumption; imperfect respiration, impure air, and moisture in the soil, are important etiological factors in the development of this disease. It is not an hereditary complaint; a narrow thorax predisposes to consumption, but by exercise the thorax may become broader, and the disease be pre-

vented. He further strongly recommends the mountain-sanatoria, and especially mentions Görbersdorf in Silesia, and Davos in Graubünden, Switzerland, and thinks the beneficial effects in these stations are produced by pure air, direct sun-rays, exercise, and diet.—("Die Lungenschwindsucht, ihre Ursachen und Heilung," von Dr. Carl von Mayer, St. Petersburg, 1874, pp. 33.)

Marshy Fermentation.—Dr. L. Popoff describes a new kind of fermentation observed and studied by him in examining the muddy contents of the river-bed of the River Ill, near Strasburg. The products of the fermentation are gases consisting chiefly of carbonic acid and marsh-gas. This fermentation generally takes place at a temperature of 6° to 8° Cent., increases with higher temperatures, but ceases above 45° Cent. With the formation of gases, numerous monads and Bacteria become developed; these present a reddish colour, and are known as monas prodigiosa. The addition of certain alkaloids, such as quinine, atropia, also cyanide of potassium, stop the fermentation and diminish the monads. Dr. Popoff further studied the relation of the monas prodigiosa to fermentation, making experiments with some monads on wet filter-paper, using them as a ferment, and found that, in direct ratio with the development and growth of that microscopic organism, destruction of the fibres of the paper and the formation of carbonic acid and marsh gas went on.—("Sdorovie" (Health), Petersburg, March, 1875, p. 267, and "Pflüger's Archiv," 2 Heft, 1875.)

PATHOLOGY AND MORBID ANATOMY.

Infantile Pneumonia.—Dr. Rautenburg, of St. Petersburg, distinguishes two forms of inflammation of the lungs in childhood, the genuine and the secondary. The genuine form arises spontaneously, from changes in the weather, in healthy children, and has a cyclical course, mostly ending favourably under an expectant treatment of symptoms. The secondary form is the result of other diseases which predispose to tissue changes in the alveoli, such as progressive bronchial catarrh, blockage of the finer air tubes by plugs of mucus, foreign bodies, etc., and general debility, causing imperfect expansion of the lungs; this form requires a tonic and stimulant treatment.—("Jahrbuch für Kinderheilkunde," Sept., 1874; and "Rev. des Sciences Méd.," May, 1875, p. 185.)

Paralysis of the Diaphragm after Section of the Phrenic Nerves.—Dr. Alyschemsky (Berliner Klinische Wochenschrift," Aug. 31st, 1874,) obtained the following facts from his experiments on animals:—

1. Division of the roots of the phrenic nerves was followed by complete paralysis of the diaphragm.

2. Paralysis of the diaphragm is not fatal per se, being fully compensated by the increased activity of the other inspiratory muscles.

3. This compensation is effected by acceleration of the respiratory movements, and by greater depth of each inspiration.

4. In animals with paralysed diaphragm, the lungs continue to expand longitudinally, though not to such an extent as in a healthy diaphragm.

5. An effect of section of the phrenic nerve is the occurrence of a projection of the upper part of the thorax on the same side.

6. After the section of the phrenics the lungs become diseased, and there is to be noticed atelectatic contraction of the lower lobes, and emphysema of the upper lobes.

7. From these observations it may be inferred that the hypostatic congestion of the lungs in disease may greatly depend upon a weakened or paralysed condition of the diaphragm.—(“London Med. Rec.,” Nov., 1874, p. 712.)

Pathology of Blood.—Dr. Laptschinsky studied the histological changes in the blood in various febrile affections, and always found a deviation from the normal state. The red blood-corpuscles lose their arrangement in piles, and present masses of variable shape and size, and between these masses there are clear spaces filled with numerous white corpuscles. These leucocytes gradually lose their round form, and become elongated and irregular in shape, and their movement becomes more rapid and marked.—(“Centralblatt,” 1874, No. 42, p. 657.)

Hypertrophy of the Heart.—Dr. J. Zielonko, of St. Petersburg, concludes from his pathologico-anatomical and experimental researches on the nature of the hypertrophy of the heart, that:—

1. In frogs: *a.* The enlargement of the heart following the ligature of the aorta is due to an increase in the mass of the muscular tissue.

b. This increase is more marked in young individuals than in old.

c. This increase is not due to an enlargement of all the cells, but to the more rapid development of the younger cells, and the augmentation of free nuclei and their formation into new cells.

2. In rabbits: The enlargement of the heart takes place without necessarily involving all the cells of the cardiac muscle.

3. In men: The size of the muscular cells of the heart differs according to age, general nutrition, and inflammatory conditions of the heart. The cells do not grow in proportion to the increased work of a hypertrophied heart.—(“Virchow's Archiv,” Bd. 62, 1874, pp. 29—55.)

CLINICAL MEDICINE.

Retro-pharyngeal Abscess in Children.—Dr. Schmitz observed, in the

hospital for sick children in St. Petersburg, sixteen cases, all in children under two years old. He adopts the view that it is an affection of the cervical lymphatic glands, such having been found only in the posterior and lateral parts of the pharynx in children during the first two years of their life. The symptoms of this disease are: the face is pale and slightly cyanotic, the lips bluish, the eyes wide open, the mouth half open, the respiration is difficult, the voice has a guttural sound resembling that in enlarged tonsils. Near the angle of the lower maxilla a swelling on one or both sides is to be seen. The sleep is often disturbed by the difficulty of respiration. The uvula is red, and pushed forward; and on one or both sides of the pharynx a fluctuating tumour can be easily detected by the finger. The prognosis is favourable; only two cases out of sixteen ended fatally. The treatment consisted in the application of cold water compresses to the neck, and of iodine pencillings to the interior of the pharynx, and later on, when the abscess presented much fluctuation, he opened it either in the pharynx or in the neck, and facilitated the exit of pus by tepid water injections.—(*"Riv. Clin. di Bol.,"* March, 1875, p. 80.)

MATERIA MEDICA AND THERAPEUTICS.

Koumis in Pulmonary Tuberculosis.—Dr. Landowsky says the beneficial effects of this fermented milk are due to:—

1. The great quantity of salts, identical to those of the serum sanguinis, being introduced into the system.
2. The action of the albuminoid matter upon the organic tissues.
3. The digestive action of the lactic acid.
4. The stimulant action of the alcohol and its influence on the development of the adipose tissue.
5. The carbonic acid acting as a stimulant to the capillaries and as a sedative to the gastric mucous membrane.
6. The state of permanent fermentation accounts for its direct and rapid action.

The therapeutic effects in tuberculosis pulmonum are:—Sounder sleep; abatement of fever; diminished cough; change in the nature of the sputa, the muco-purulent expectoration becoming mucous; improved appetite; increase in weight. The statistics of koumis treatment of a hundred tuberculous patients are given by Dr. Bogoiawsky:—15 cured, 70 improved, 10 no change, and 5 died. Dr. Landowsky reports 30 good results in 40 observations.—(*Rev. des Sciences Méd.,"* May, 1875, p. 234.)

Mercury, Effects on the Blood in Syphilis.—Dr. Vilbouchevitch concludes from his experiments that during the first fortnight of a mercurial treatment of syphilis, the red and white blood-corpuscles gradually return to their relative proportions, but should the use of mercury be

continued for a longer period, the number of red globules decreases, and that of the white corpuscles becomes augmented. — ("Riv. Clin. di Bol.," April, 1875, p. 121.)

Treatment of Tuberculosis in Khiva.—Dr. Vambéry reports that in Khiva the treatment of tuberculosis consists in the administration of an infusion of karatala leaves (a kind of ivy leaves), and in giving frequent draughts of sheep's-blood. — ("Sdorovie" (Health), Petersburg, January, 1875, p. 148.)

TOXICOLOGY.

Strychnia, Physiological Researches.—Dr. N. Gorochofzeff, of Orenburg, concludes from his experiments on dogs that the poisonous effects of strychnia are stronger and more rapid when introduced into the cavity of the mouth than in the stomach. Half a grain of strychniæ sulphas introduced into the mouth of a dog, after the ligature of the œsophagus, produced death in four minutes, whilst a similar dose when allowed to reach the stomach proved fatal in fifty minutes. Death is not caused by absorption of the poison when introduced into the mouth, as no traces of strychnia could be found in the blood. — ("Rev. des Sciences Méd.," May, 1875, p. 57.)

Oxygen, an Antidote in Strychnia-Poisoning.—Dr. Ananoff, of Tiflis, in studying the therapeutic value of oxygen, found that in animals poisoned by strychnia the inhalation of pure oxygen, by aid of artificial respiration, always counteracted the effects of that poison. — ("Echo de la Presse Méd.," Paris, Aug., 1874, p. 64.)

Arsenious Acid, Physiological Researches.—Dr. Boehm, of Dorpat, records his own researches and those of Dr. Unterberger. On injection of a watery solution of arsenious acid into a vein of a dog or a cat, a gradual sinking of the mean blood-pressure occurs. This sinking is in proportion to the quantity of the drug used, and is never preceded by an increase of the blood-pressure. This may be ascribed to paralysis of the abdominal blood-vessels and to a diminution of the capacity of the cardiac muscle for action. After death ecchymoses in the endocardium of the left ventricle were constant. The nerves of the heart are unchanged, and there is no paralysis of the sympathetic nerve. — ("Archiv für Experimentale Pathologie," Leipzig, 1874.)

Curara, Effects on the White Blood-Corpuscles and Lymphatics.—Dr. Drosdorf, having noticed in curarized frogs the complete destruction of the white blood-corpuscles, Dr. Tarchanoff made some experimental researches, and arrived at the following conclusions:—

Curara, acting directly on the white corpuscles, destroys them, and on examining the same frogs two days later the blood is found to contain eight times less white corpuscles and four times more red corpuscles. At the same time the lymphatics appear to be over-filled

with white corpuscles. After the effects of curara are exhausted the white corpuscles return into the blood-vessels and the normal state is re-established. On applying electricity to the curarised frog the over-charged lymphatics, in a similar way, return the white corpuscles into the blood-current. These facts prove that the disappearance of the white corpuscles from the blood-current is not due to their destruction, but to the increase of tension and absence of muscular contraction in the vessels.—("Gaz. Hebd." Dec., 1874, p. 822.)

CLIMATOLOGY.

Atmospheric Air in St. Petersburg.—Dr. G. J. Archangelski publishes some notes on "Air in St. Petersburg." Comparing the chemical composition of the air inhaled and exhaled by the lungs, we get the following figures:—

Contents in thousand parts of air—

	Inhaled.	Exhaled.
Carbonic Acid	0.4	43.8
Oxygen	208.1	160.3
Nitrogen	791.5	795.5

Besides this the air always contains more or less of organic matter. With regard to the proportion of carbonic acid, the air does not affect the individual health if it does not exceed 0.5 per mille. The quantity of organic matter contained in the air is in direct ratio to the quantity of carbonic acid.

The observations in St. Petersburg show that in lecture-rooms, theatres, etc., the upper parts of the building contain more carbonic acid, and the same is the case in buildings where the ground-floor is overcrowded (as in drinking and smoking-rooms), when the carbonic acid is sent up into the upper stories through the floors. Winds have a purifying effect on the atmospheric air of towns, Dr. Archangelski found, in St. Petersburg, the windy days to be fewer in summer than in all other seasons. Atmospheric moisture increases the unhealthiness of the air, as by fogs the organic contents are greater and become stagnant. Dr. Archangelski finds that fogs are not frequent in St. Petersburg, and therefore very little affect the purity of the air.—("Sdorovie" (Health), St. Petersburg, Nov. and Dec., 1874, pp. 76—78, and 90—94.)

Ozonometric Notes.—Dr. A. Strshishowski, of Petrokoff, remarks that he found in that town the quantity of ozone in the air to be very small in November and very considerable in December. In November there were more fogs and no snow; and in December, with the snow and clearness in the atmosphere, the quantity of ozone became increased.—("Sdorovie" (Health), Petersburg, Jan., 1875, p. 145.)

MISCELLANEOUS.

Air in Theatres.—Dr. Hübner concludes from his observations made in a theatre at St. Petersburg, that in crowded places the air undergoes gradual alterations, when it may produce toxic effects in the lungs of persons generally used to a respiration of pure air.

Dr. Hübner made his observations whilst occupying a central box in the upper circle facing the stage, and found the temperature rising every quarter of an hour from 18° centigr. to 25° centigr.; the moisture gradually increased from 30 per cent. to 85 per cent.; the carbonic acid gas rose gradually to 4·3 per mille.—(“*Union Médicale*,” Paris, Jan., 1875, p. 60.)

Effects of Suppression of Perspiration by Covering the Skin of Animals with Varnish.—Dr. Feinberg, of Kowna, communicates from his experimental researches, the following among other effects:—

a. During life:—

1. Hyperæsthesia and increased reflex excitability.
2. Diminished respiration and enfeebled action of the heart.

b. After death:—

Dilatation of the subcutaneous vessels; great distension of the pulmonary capillaries; subpleural sanguinous extravasation; sanguinous repletion in the cavities of the heart, and hæmorrhagic infiltration of the cardiac muscle.—(“*Rev. des Sciences Méd.*,” April, 1874, p. 491.)

New Method of Resuscitation.—Dr. Boehm, of Dorpat, in studying the action of poisons on animals, found that by exercising a slight pressure on the cardiac region during the passive expiration of artificial respiration, the animals revived after having been apparently dead for forty minutes; whilst he never succeeded in bringing them into life again with artificial respiration alone, after the breathing had been stopped longer than eight minutes.—(“*Echo de la Presse Méd.*,” Paris, Aug., 1874, p. 48.)

ITALY.

(Report by ADOLPHE WAHLTUCH, M.D.)

ANATOMY AND PHYSIOLOGY.

The Nasal Organ.—Dr. A. Verga makes some observations on the anatomy and physiology of the nasal organs of man and various animals, and says that the nasal fossæ, with their accessory cavities, such as the antrum maxillare and the frontal, ethmoidal, and sphenoidal sinuses, first, give a lighter weight to the head; secondly, serve to interrupt, to warm, and to preserve the air during its passage to the lungs; thirdly, enable all odorific matter to diffuse and to reach the filaments of the olfactory nerve; and, lastly, influence the pitch of the voice.—(“Annali Universali di Medicina e Chir.,” Milano, Nov., 1874, pp. 225—263.)

Bursæ Mucosæ in connection with the Trachea and Larynx.—Dr. L. Calori describes three new bursæ mucosæ in connection with the trachea and larynx. 1. Aortico-trachealis, situated between the arch of the aorta and the lower part of the trachea, and found by him in thirteen out of forty dead bodies. This bursa facilitates the movements of the aortic arch under the trachea. 2. Thyro-tracheale, between the isthmus of the thyroid gland and the trachea. This bursa is more frequently met with than the first mentioned, and presents itself either single or double, but always on the median line. Its function is to diminish attrition between the trachea and thyroid gland. 3. Crico-thyro-thyroidea, between the crico-thyroid muscle, the lateral lobes of the thyroid gland and the superior rings of the trachea. This bursa is found on both sides, and serves to remove the impediment caused by the superposed gland to the free action of the crico-thyroid muscle.—(“Ann. Univ. di Med. e Chir.,” Milano, April, 1875, p. 94.)

Functional Nature of the Respiratory Centre.—Drs. G. Pratilli and L. Luciano, from experiments made in the physiological laboratory of Bologna, conclude that: 1. The respiratory mechanism is not due to the reflex action of the peripheric nerves, but is of a central origin. 2. The automatic function of the respiratory centre in the medulla oblongata is dependent on the nutrition of the central parts, analogous to the rhythmic cardiac action proceeding from the nutritive changes

in the tissues of the heart.—(*"Riv. Clin. di Bol.,"* Dec., 1874, pp. 353—361.)

Nervous Ganglia of the Heart.—Dr. L. Pagliani concludes from his physiological experiments on frogs that: 1. The cardiac nerve-ganglia act as a reflex-centre for the nerves terminating in the external and internal membranes of the heart. 2. The variations in the movements or arrest of the heart depend on the various degrees of excitation in the fibres that pass through or emanate from the ganglionic cells. 3. The highest degree of excitability is possessed by the fibres found in the sinus of the vena cava, and near the auriculo-ventricular orifice; the lowest degree of excitability by those fibres that enter the myocardium near the aortic bulb, and hence are distributed to the heart.—(*"Lo Sperimentale,"* Torino, 1874.)

Contractibility of the Capillary Vessels.—Prof. A. de Giovanni concludes from his experiments, that the capillary blood-vessels are contractile, and that their contractibility is effected by their sarcodic substance; he further asserts that the capillary walls are formed of simple protoplasm, and that the new capillaries originate from the stretching out of the protoplasm of the existing blood-vessels.—(*"Riv. Clin. di Bol.,"* April, 1875, p. 100.)

ETIOLOGY.

Inoculation of Tubercles.—Drs. S. Biffi and A. Verga publish their experiments in a pamphlet, and the results obtained may be thus summed up:—

1. The inoculation of the grey human tubercle, taken from a pulmonary vomica, into the skin or the jugular vein of a rabbit or horse always produces tubercles in the lungs of these animals, but has no such effect when the animal experimented upon is a cow, a sheep, a dog, a cat, or a chicken.

2. The inoculation of a rabbit with pus, cancer, mercury or coal-dust never resulted in tubercular disease.—(*"Riv. Clin. di Bol.,"* Dec., 1874, p. 382.)

DIAGNOSIS.

Myosis of both Pupils in Cardiac Affections.—Dr. A. de Giovanni reports three cases of myosis of both pupils in patients affected with organic heart-disease, and considers this contraction to be a grave prognostic symptom being due to a state of malnutrition in the middle cervical ganglion of the sympathetic, by which also functional disturbances in the heart and lungs are produced.—(*"Di una Alterazione della Pupilla osservata in alcuni Cardiaci,"* A. di Giovanni, Milano, 1875.)

PATHOLOGY AND MORBID ANATOMY.

Pathological Changes in the Sympathetic Nerve in Tuberculosis and Pneumonia.—Dr. Pio Foa's researches on the pathological anatomy of the sympathetic nerve in various diseases, give, amongst others, the following results:—

1. In chronic pulmonary tuberculosis the sympathetic ganglia show the effects of slower circulation, and present dilated and congested vessels with a slight increase of the white blood-corpuscles, whilst the nerve-cells contain more or less pigment. When large vomicae occupy both lungs, and there has been a prolonged feverish state, there will be found atrophy of the cervical and semilunar ganglia, and the nerve-cells in a state of fatty degeneration. In acute tuberculosis the ganglia are largely infiltrated with white blood-corpuscles.

2. In pneumonia the semilunar ganglia will be congested, while all the other ganglia are unaffected, or present the changes due to old age, namely, increase of fibres and pigment.—(*"Riv. Clin. di Bol.,"* Aug. and Sept., 1874, pp. 275, 276.)

Tubercle in the Ganglia of Nerves.—Dr. Colomiatti communicates two cases of tuberculous patients in which he found, after death, tubercular nodules in the connective sheaths of the ganglia and also in the peri-neurium of the nerves connecting the dorsal spinal ganglia with the great sympathetic.—(*"Gaz. delle Clin.,"* Nov. 17, 1874.)

Endo-arteritis.—Dr. A. de Giovanni reports some cases of endo-arteritis, and thus sums up:—Atheromatous degeneration presents the following morbid phenomena:

1. Diminished activity of the arteries and slackening of the blood current in the capillaries and veins.

2. Fragility of the arterial walls, and easy rupture of the vessel whenever there is increased action of the heart.

3. Diffuse atheroma interferes with proper hæmogenesis, disturbs nutrition, and results in anæmia.

4. The organic functions of the heart, intestines, liver, spleen, or kidneys being more or less affected by atheroma, the clinical features vary accordingly.—(*"Note cliniche sulla endo-arterite deformante,"* di A. de Giovanni, Milano, 1875, p. 45.)

CLINICAL MEDICINE.

Nervous Cough as a Reflex Symptom in Antverted Uterus.—Dr. M. de Cristoforis, of Milan, mentions the following case:—

A lady, aged twenty-three, of nervous temperament, complained of a tedious cough, for which she had been for some time under treatment without any improvement. Two years ago she miscarried after three months' gestation, and this was the only pregnancy she ever

had. She menstruated regularly. The examination of the larynx and chest-organs gave no clue to the origin of the cough. But there were two remarkable symptoms :

1. A frequent desire for micturition, with pain in the sacro-lumbar region.

2. The cough was only troublesome when she was erect, and soon disappeared on adopting a dorsal position.

On examination, the uterus was found to be antverted, the fundus pressing on the bladder, and the neck leaning towards the sacrum. On readjusting the position, and introducing a Hodge's pessary, the cough ceased entirely.

This case appears to show that cough may be due to a reflex action caused by the compressed utero-sacral plexus, through the spinal cord and the pneumo-gastric nerve.—(*"Ann. Univ. di Med. e Chir.,"* Milano, March, 1875, pp. 518-522.)

Gouty Heart Affection.—Professor E. de Renzi mentions a case of gout complicated with cardiac disturbances, in which after death calcareous incrustations were found in abundance on the mitral valve; a chemical examination of these showed them to consist chiefly of uric acid. They were quite identical with the gouty deposits found in the joints.—(*"Il Morgagni,"* Napoli, Sept., 1874, p. 663.)

Fibro-sarcoma of the Heart.—Dr. Sogliano Marcello, of Naples, relates a case of a lady, aged fifty, who suffered during three months from a retro-sternal pain, a dry cough, ascendant œdema, and indurated glands of the neck, arm-pits and groins. The heart appeared, post-mortem, to be greatly enlarged; the myocardium discoloured and filled with fibro-sarcomatous tumours. Behind the sternum there was a large white lardaceous tumour, attached to the cellular tissue of the mediastinum, and formed by three or four degenerated lymphatic glands and some dense and lardaceous tissue.—(*"La Clinica,"* Napoli, July, 1874.)

Mediastino-pericarditis Callosa.—Dr. R. Cantilena (*"Giornale Veneto di Scienze Med.,"* July, 1874) describes a case of a young man, who whilst recovering from an attack of acute left pleurisy, exhibited signs of pericardial effusion, and when the fluid became absorbed, there remained slight œdema with cyanotic tint in the face and neck, enlarged liver and spleen, and slight œdema in the lower extremities; the heart did not follow the respiratory movements of the diaphragm. Dr. Cantilena concluded that these symptoms depended upon an impediment to the return of the blood through the vena cava, and made the diagnosis of mediastino-pericarditis callosa.—(*"London Med. Rec.,"* Sept., 1874, p. 567.)

Tuberculosis of the Heart.—Dr. C. Forlanini relates a case of a patient who for several months suffered from intermittent fever and cardiac palpitation, and died from symptoms of paralysis of the

heart. The post-mortem examination showed slight general œdema; old partial pleuritic adhesions, œdema of both lungs, diffuse lobular catarrhal pneumonia of recent date; liver and kidneys in a state of chronic congestion and fatty infiltration; chronic catarrh of the stomach; spleen normal; retinitis exudativa of the left eye; all the lymphatic glands in a normal condition. The heart was enlarged to three times its usual size, and weighed 810 grammes, or more than thrice its normal weight; the pericardium presented slight adhesions and fibro-gelatinous effusion; the valves of the heart were all in a healthy state; the myocardium was almost entirely occupied by tuberculous masses, large cheesy nodules softened in the centre, and small vomicae. No traces of tubercles were found in the lungs or any of the viscera. Dr. Forlanini remarks, that this is the thirteenth case observed, but whilst in all the other twelve tubercles have been found elsewhere, this case is unique, in presenting primary tuberculosis of the heart.—(*"Ann. Univ. di Med. e Chir.,"* Milano, Oct., 1874, p. 204.)

Aneurism of the Aorta and Perforation of the Trachea.—Dr. G. Morelli mentions a case of aneurism of the aorta communicating with the trachea near the bifurcation; ulcerations of the aneurismal sac and of the tracheal wall having been caused by pressure; but these ulcers were covered with fibrinous clots, which prevented the passage of blood into the respiratory tubes.—(*"Rev. des Sciences Méd.,"* April, 1874, p. 496.)

Metastatic Pulmonary Abscesses.—Dr. Salvatore Spiaggia describes a fatal case of abortion, and observes that the pressure of the uterus led to the formation of a thrombus in the utero-ovarian vein, which extended to and softened in the venâ cava, whence portions of the thrombus reached the pulmonary arterioles, and produced abscesses in the lungs.—(*"London Med. Rec.,"* Dec., 1874, p. 812.)

SURGERY.

Amputation of the Tongue in a Child.—Professor Caselli (*"Bull. delle Scienze Med.,"* Part V., Vol. xvi.), relates a case of the successful removal of the tongue, affected by a cancerous tumour, in a boy, aged nine. Caselli removed the entire tongue, by Rizzoli's method, dividing the lower jaw near the median line, and applying a ligature. On the fifth day, seeing that the tumour was slow in coming away, he removed it by Chassaignac's ecraseur; there was no hæmorrhage. In thirty days the wound was quite healed, and deglutition and speech were normal.—(*"London Med. Rec.,"* May, 1874, p. 323.)

Laryngeal Growth.—Dr. Massei removed a multiple papilomatous growth situated on the right vocal cord, and the anterior commissure

of the cords, in a lady, aged thirty-two; there being much irritation in the throat, he applied successfully, previous to the operation, local anæsthesia, by pencilling the interior of the larynx alternately every one and a half hour, with pure chloroform and with a solution of morphia, altogether using these applications four times.—("London Med. Rec.," May, 1875, p. 292.)

Extirpation of the Larynx.—Dr. Martelli reports a case of a man, aged thirty-four, who was suffering from difficulty of breathing, owing to a mechanical obstruction in the larynx by a morbid growth; laryngotomy gave only temporary relief; the application of the galvanic cautery, attempts to dilate the parts by means of laminaria tents, had no effect. Dr. Bottini therefore performed the operation of extirpation of the larynx, and with great success.—("London Med. Rec.," April, 1875, p. 261.)

Thoracentesis.—Dr. Malachia de Cristoforis concludes a treatise on the operation of opening the thorax, with the following remarks:—

1. The exploratory puncture for ascertaining the existence of a pleuritic effusion, and for verifying its serous or purulent nature, is one of the most important acquisitions in medicine.

2. In all cases of serous effusion in the pleura, thoracentesis, being now a simple and safe operation, may be adopted as the best curative agent.

3. In empyema it is preferable to make an incision into one of the inter-costal spaces, and to apply a canula, by which daily injections can be introduced.—("Ann. Univ. di Med. e Chir.," Milano, Jan., 1875, pp. 23, 41.)

Intra-thoracic Aneurism and Electrolisis.—Dr. Malachia de Cristoforis reports several cases of intra-thoracic aneurism treated by electrolisis, and adds the following conclusive remarks:—

1. Electrolisis in aneurism has solely a palliative and symptomatic value.

2. Sphygmography applied directly to the tumour, before and after the operation, clearly shows the solidification of the aneurismal sac.

3. Death follows some time after the operation through rupture of the dilated vessel.

4. In exceptional cases the excessive size of the aneurism causes compression of the pneumogastric or recurrent nerve, and death may occur from paralysis of the glottis or larynx.

5. As a very grave prognostic sign may be regarded a change in the pitch of the voice conjointly with unilateral paralysis of a vocal cord.—("Ann. Univ. di Med. e Chir.," Milano, April, 1875, pp. 37-51.)

Resection of the Sternum and Ribs.—Professor Mazzoni ("Anno

Sec. di Clin. Chir.," Rome, 1874) reports five cases of resection of the sternum and ribs :

1. Myxosarcoma of the sternum, excision of the whole sternum with portions of the second, third, and fourth costal cartilages; the wound healed, but the patient died fifteen days after the operation from broncho-pneumonia.

2. Caries of the sternum and first rib; both removed successfully.

In three other cases of caries of the ribs, these were successfully removed, and recovery was complete.—("London Med. Rec.," May, 1875, p. 310.)

MATERIA MEDICA AND THERAPEUTICS.

Cantharides.—Dr. Cantieri studied experimentally the action of cantharides, with the following among other results:—

It produces changes in the blood, by destroying the red corpuscles, when in direct contact with them; or by corrugating them, when acting on them indirectly by way of absorption; it reduces arterial tension, increases the frequency of the cardiac beats and the temperature of the body; it further induces hyperæmia, stasis, and even inflammation in various organs. He further states, that vesicants weaken and depress the action of the heart; and advises to apply them with caution, for a short time only, as a revulsive and rubefacient in primary hyperæmia, in simple passive hyperæmia, and in beginning of inflammation. Vesicants should not be applied to nervous, debilitated persons, to patients suffering from infectious fever, or from chronic heart-disease.—("London Med. Rec.," Dec., 1874, p. 803, and Jan., 1875, p. 13.)

Propylamine.—Dr. Cerasi finds propylamine, in doses from 9 to 45 grains per day, to act as a depressor on the cardio-vascular circulation; to diminish morbid excess of heat, and to bring into harmony defective distribution of blood caused by disturbed innervation.—("London Med. Rec.," Jan., 1875, p. 25.)

Paralysis of the Vocal Cords cured by External Faradisation.—Dr. de Renzi, of Genoa, relates the case of a girl, aged seventeen, suffering from paralysis of both vocal cords after a late attack of catarrhal laryngitis, with complete aphonia, and who was cured in three days by faradisation of the skin of the throat.—("Ann. Univ. di Med. e Chir.," Milano, Jan., 1875, pp. 116 and 117.)

Treatment of Diphtheria.—Dr. Castrucci, having in view the parasitic origin of diphtheria, recommends the following treatment as tried by him successfully:—

1. Twice a day topical application of a solution of nitrate of silver (1 in 20).

2. The daily administration of $1\frac{1}{2}$ to $4\frac{1}{2}$ grains of black sulphuret of mercury.

3. Broth and wine daily.—(*Lo Sperimentale*, Aug., 1874.)

Dr. G. Ferrini reports sixty-four cases of diphtheria, observed by him in 1874, in Tunis, of which fifty-nine recovered, and five died. The treatment he strongly recommends consists of the internal administration of a decoction of cinchona with sulphite of soda, and of the local application of chloral hydrate (gr. 30—45) with glycerine ($\frac{3}{4}$ iii.—v.), to pencil the throat every two hours with this mixture.—(*Ann. Univ. di Med. e Chir.*, Milano, May, 1875, pp. 193—242.)

Dr. F. Gatti reviews the various therapeutic means used for the cure of diphtheria, and advocates the following treatment:—

1. Plenty of pure and renewed air.
2. Internal administration of quinine and decoct. cinchonæ.
3. Liberal diet.
4. Horizontal position on the back.
5. Local application of an alcoholic solution of carbolic acid (3 per cent.) by means of pencilling the throat and fauces.
6. During convalescence—change of air, animal food, and cinchona decoction.

7. Tracheotomy should be performed without loss of time in severe cases, but is counter-indicated whenever the disease spreads to the nasal fossa and bronchial tubes, and when there is a general state of prostration.—(*Ann. Univ. di Med. e Chir.*, Milano, April, 1875, pp. 51-73.)

Carbolic Acid in Pneumonia Caseosa.—Dr. Tomassi administered successfully a sweetened solution of carbolic acid (1 part to 40 parts of water), in doses from 1 to $1\frac{1}{2}$ grammes per diem, in obstinate cases of pneumonia caseosa.—(*London Med. Rec.*, Sept., 1874, p. 548.)

Hypodermic use of Calomel in Pneumonia.—Dr. Formenti successfully tried the subcutaneous injection of calomel (gr. 1—3 to \mathfrak{m} xv. aqua) into the arm of patients suffering from acute pneumonia.—(*London Med. Rec.*, Aug., 1874, p. 537.)

Treatment of Pulmonary Phthisis.—Dr. Pietra Santa considers pulmonary phthisis to be a general affection, with greatly altered nutrition, and considers it a curable disease. He strongly recommends:—

a. Moral and hygienic treatment, pure and renewed air, tonic regimen, moderate exercise, and milk diet.

b. Mineral waters—sulphuretted, arseniated, and chlorides.

c. Sojourn in temperate climates in winter, and in mountainous countries in summer.

d. The administration of hyposulphites, and of alkaline and terrous sulphites.—(*London Med. Rec.*, Dec., 1874, p. 825.)

Treatment of Unilateral Pleurisy by compression of the healthy part of the Thorax.—Dr. A. Riva strongly recommends this new method for the

treatment of pleuritic effusions, as introduced by Professor Concato. His conclusions are:—

1. The consequences of pleuritic effusions are:—
 - a. Compression of the lung, and dilatation of the thorax of the affected side.
 - b. Disturbances in the position of the neighbouring viscera.
 - c. Congestion and emphysema in the lung of the healthy side.
2. By artificial compression of one side of a healthy thorax, the same loses in capacity about 480 cub. cent., whilst the other side gains about 380 cub. cent. The same result is obtained when patients with one-sided pleurisy are experimented upon, and they soon feel the benefit of this treatment, for the dyspnœa disappears, and gradual absorption takes place.
3. The compression is performed with both hands applied to the healthy side twice a day, during five to fifteen minutes each time.—(*"Riv. Clin. di Bol.,"* Jan., 1875, pp. 1—5.)

MISCELLANEOUS.

Action of a Human Embryonic Heart.—Dr. A. Fili relates the observation of the functions of the heart of a human embryo of four months, made twelve hours after birth. There existed a distinct systolic murmur, but no traces of respiratory movements. On opening the thorax, the heart was seen lying on the diaphragm, and contracting from right to left obliquely, at first simultaneously in both ventricles and auricles, and then gradually the contractions became consecutive in these divisions of the heart, making twenty-eight contractions in a minute. On applying the stethoscope, Dr. Fili traced the first sound to the valves, and thereby opposes the view of many authors that the origin of the first sound is in the muscular walls; as, in his case, the action of the heart was too slow to produce the necessary muscular oscillations for the first sound to be audible. He further clearly demonstrated that the blood enters the coronary arteries during the systole of the ventricles.—(*"Mediz. Neuigk.,"* Erlangen, Sept., 1874, p. 287.)

A Leech removed from the Larynx.—Dr. F. Massei reports a remarkable case of a man, aged thirty-three, who had been suffering since a fortnight from cough, dyspnœa, disphagia, and hæmoptysis, after having drunk some impure water from a river. The laryngoscope discovered a leech attached to the right pharyngo-laryngeal sulcus, and pending along the ary-epiglottic ligament freely within the laryngeal cavity. The entire mucous membrane of the larynx was congested, and the under-surface of the epiglottis presented several yellowish-white, small, round marks of fibrinous exudation resulting from the bite of the leech. With the aid of polypus forceps,

Dr. Massei removed the leech, which was still living, and after some astringent local applications the patient soon recovered, with no ill results. Dr. Massei mentions two other cases of leeches entering the larynx, as observed by Vital and Lacretella. In the case of Vital the leech remained forty days in the trachea, and was removed alive by means of tracheotomy. — ("Il Morgagni," Napoli, Oct., 1874, pp. 749—752.)

Galvanocautery applied to the Lungs.—Dr. Castro made some experiments on rabbits, cats and dogs, applying to their lungs the galvanic cautery by means of a silver wire introduced with the needle of a hypodermic syringe, and concludes therefrom that such an operation can be safely performed, and thinks these experiments deserve further trial, and may be found to be a valuable addition to the treatment of lung-affections. — ("Ann. Univ. di Med. e Chir.," Milano, April, 1875, p. 172.)

GERMANY AND AUSTRIA.

(Report by ADOLPHE WAHLTUCH, M.D.)

ANATOMY AND PHYSIOLOGY.

Acinous Glands of the Tongue.—Dr. Ebner found at the back of the tongue small serous glands, consisting of an excretory duct lined by a single layer of epithelium, and opening out into a series of alveoli analogous to the pancreas; the secreted fluid contains no mucin.—("London Med. Rec.," Oct., 1874, p. 563.)

Eustachian Tube, Condition during Life.—From experiments made by Dr. Poorten, ("Monatsschrift für Ohrenheilkunde," Feb., 1874), he concludes that the Eustachian tube is an open canal from the ostium tympanicum to the isthmus.

Function of the Nerves and Muscles of the Larynx.—Dr. Schech gives the following results of his physiological experiments on the function of the larynx:—

1. It is the accessory nerve that imparts the motor fibres to the laryngeal nerves.

2. The nervus laryngeus superior is the chief motor nerve of the larynx.

3. The function of the crico-thyroid muscle is to draw the cricoid cartilage upwards.

4. The nervus laryngeus inferior, when cut, causes aphonia, narrowing of the glottis, and complete inaction of the vocal cords.

5. The posterior crico-arytenoid muscle, when paralysed, causes no change in the voice, but only a slight disturbance of the respiration, such as stridulous breathing and dyspnoea.—("Mediz. Neuigk.," Erlangen, Aug., 1874, p. 277.)

Physical Principle of Respiration.—From his experimental researches Dr. S. Wolffberg concludes that the exchange of gases between the atmosphere and the pulmonary blood is effected by diffusion, and he therefore considers the law of diffusion of gases to be the physical principle of respiration.—("Ueber das Physicalische Princip der Lungenathmung," von Dr. S. Wolffberg, Bonn.)

Respiration and Heat.—Dr. F. Riegel ("Virchow's Archiv," Band lxi., Heft. 3.) proves by experiments that respiration, like the skin, is an important regulator of animal heat.—("London Med. Rec.," Nov., 1874, p. 744.)

Respiratory Nerve-Centres.—Dr. P. Rokitsky's experiments show that on dissecting the medulla oblongata near to the fourth ventricle respiration ceases, but is soon re-established on immediately introducing a solution of strychnia into the circulation. He thinks, therefore, that the respiratory centre extends lower down the medulla oblongata than generally admitted.—("Stricker's Jahrbücher, 1874, p. 30.)

Respiratory Movements.—Dr. Sigmund Mayer ("Sitzungsberichte" of the Vienna Academy, Band lxi.) concludes from his experiments on dogs that in lowering the heart's action by stimulating the vagus, the respirations become quicker and deeper, and when the stimulation is stopped, with the returning heart-contractions the breathing ceases for half a minute. He explains this thus: By stoppage of the heart the blood stagnates in the brain, and being impoverished of oxygen, stimulates the respiratory centre, and causes quicker and deeper respiration; these, having the effect of excessive oxygenation, with the return of the heart's action a current of highly arterialised blood is sent to the brain, which is not capable of exciting respiratory movements.—("London Med. Rec.," April, 1875, p. 224.)

Fœtal Respiration.—Dr. E. Hoffmann considers that the ability to perform respiratory movements originates in the fœtus at the time of quickening; and in cases of interrupted placental respiration, a diminution of oxygen in the blood takes place with excitation of the respiratory centre in the medulla oblongata, resulting in compensatory respiration in the lungs. In such cases the fœtus perishes from asphyxia, in consequence of the inspiration or imbibition of the surrounding fluid, the liquor amnii having been found in the nasal passages, in the cavity of the drum and in the pharynx; the lungs and right heart are congested, having the usual appearances of death from asphyxia.—("Mediz. Neuigk." Erlangen, Sept., 1874, p. 309.)

Expansion of the Lungs during Inspiration.—Dr Stern concludes from physiological investigation that when combined action of the diaphragm and the thoracic walls takes place during inspiration, the expansion of the various parts of the lungs varies in degree, and is greater in the upper lobes than in the lower ones, and is greatest in the anterior parts of both lungs.—("Mediz. Neuigk.," Erlangen, Aug., 1874, p. 257.)

Solubility of the Blood-Corpuscles.—Prof. Landois (Centralblatt für die Med. Wissenschaften," No. 27, 1874,) remarks that amongst the gases, carbonic acid has the highest dissolving power for the blood-corpuscles.—("London Med. Rec.," Nov., 1874, p. 729.)

Oxy-Hæmoglobin.—Dr. A. Schmidt, amongst other facts deduced from an examination of the cardiac blood of guinea-pigs and frogs, noted the following:—

1. Oxy-hæmoglobin is constantly found in the cardiac blood of the

living foetus, before the first respiration, and in grown animals after death caused by hunger, freezing, entrance of air into the veins, or poisoning by hydrocyanic acid.

2. Hæmoglobin free of oxygen is found after death by drowning, pneumothorax, puncture in the respiratory centre, respiration of rarefied or of hot air, and by poisoning with chloroform, alcohol, arsenuretted hydrogen, strychnia, nicotine, etc.—(“London Med. Rec.,” Nov., 1874, p. 729.)

Blood Circulation in the Lungs.—Dr. Küttner of Heidelberg concludes from experiments made on frogs, that the distribution of the blood-vessels in the lungs differs from that in other organs, in facilitating the circulation of relatively larger quantities of blood, and in allowing a quicker compensation in the capillaries in cases of disturbed circulation in the larger vessels.—(“Virchow's Archiv,” Vol. lxi., 1874, pp. 21-43.)

The Blood in the Capillaries.—From the researches of Dr. A. Schmidt he concludes that the coagulation of blood is produced by the agency of three substances: *a.* fibrino-plastic, *b.* fibrino-gene, *c.* a ferment. Dr. Falk on examining the blood in the capillaries of dead bodies found only two of these substances present; the fibrino-gene, being constantly absent. Dr. Falk therefore believes that the absence of coagulation in the capillary blood is explained by the disappearance of the fibrino-gene substance, after death, from the capillaries and its passage through the capillary walls into the adjoining parenchymatous juices. Dr. Falk suggests this may also be the cause of the rigidity of the muscles after death.—(“Rev. des Sciences Méd.,” Vol. iv., 1874, p. 426.)

Arterial Blood-Pressure.—Dr. W. Müller's (“Ludwig's Arbeiten,” Vol. viii., p. 159) experiments upon dogs confirm the results obtained from experiments made by Goltz upon frogs, and by Tapeiner upon rabbits, and lead to the following conclusions:—“The vascular system can accommodate very large quantities of blood, without there being any marked increase of the normal arterial blood-pressure. The increase in the capacity of the vascular system is accomplished by the help of the capillary nets of the smallest arteries and veins. An expansion of the capillary networks is not a necessary consequence of the overfilling, as there are very probably, under normal conditions, many capillaries which become permeable for the blood-current, after considerable increase of the quantity of blood.”—(“London Med. Rec.,” June, 1874, p. 388.)

Analysis of Heart-Sounds.—In a paper read before the Erlangen Medical Society, Dr. Wintrich considers the heart-sounds to be a combination of the valvular sounds, and of the systolic muscular sound. The valvular sounds originate at the commencement of the systole and of the diastole of the heart. The systolic or first sound is due to

the rapid and sudden action of the blood-pressure upon the mitral and the tricuspid valves; the diastolic or second sound to the same action upon the semi-lunar valves; but the duration of either of these sounds is less than the time of the systole or diastole, and hence the valvular sounds are followed by a systolic or a diastolic pause. His experiments explain this as depending on the fact that elastic membranes will produce a sound only when in a lax state, whilst no sound will be heard when they are in a state of high tension. The præsystolic sound will arise from a violent præsystolic contraction of the left atrium causing sudden tension of the mitral valve, counteracting the systolic sound of that valve, whilst the systolic sound of the tricuspid will be heard to succeed the præsystolic sound, thus giving the effect of a double first sound. The systolic muscular sound is deeper than the valvular sounds, and of the same duration as that of the contraction of the heart-muscle, about thirty-six vibrations in a second. This sound can only be heard by aid of a resonator, as under ordinary circumstances two isochronous waves impress the ear as only one sound.—("Mediz. Neuigk.," Erlangen, Jan., 1875, pp. 17-20.)

Physiology of Cough.—The experiments of Dr. Kohts show that cough is produced by exciting the nervus laryngeus superior, or the nervus pharyngeus, but not the nervus recurrens; and that the centre for cough is situated in the ala cinerea, near the lower part of the floor of the fourth ventricle, where the origin of the fibres of the nervus vagus can be traced.—("Mediz. Neuigk.," Aug., 1874, p. 259.)

The Act of Vomiting and Apomorphia.—From a hundred subcutaneous injections of apomorphia in dogs, Dr. C. Greve, of Würzburg, arrives at the following conclusions:—

1. Apomorphia is the safest emetic, rapid in its action, and without any consecutive troubles.
2. The nervous centre of vomiting is either identical with or close to the nervous respiratory centre.
3. The stomach takes no part in the act of vomiting.—("Rev. des Sciences Méd.," Vol. v., 1875, p. 61.)

ETIOLOGY.

Pertussis.—Dr. Letzerich demonstrates the existence and development of a parasitic fungus in all cases of pertussis. He found in the sputa white streaks, consisting of free micrococci in different states of development. The introduction of such sputa through a tracheotomy wound into the larynx of rabbits produces in them, after the healing of the wound in six or eight days, all the symptoms of whooping cough, and post-mortem the pertussis-fungus is to be seen in various stages of growth between the folds of the mucous membrane of the respiratory tubes.—("Mediz. Neuigk.," Erlangen, Dec., 1874, p. 407.)

and this gives the normal percussion-sound in health. But whenever the air-vesicles lose part of their air in various chest-affections, the pure bronchial sound is heard more distinctly, and becomes tympanitic. When the air-vesicles have completely parted with their air, the sound will be a dull one.—("Rev. des Sciences Méd.," Vol. iv., 1874, p. 516.)

PATHOLOGY AND MORBID ANATOMY.

Hæmatoidin-Crystals in the Sputa.—Dr. F. Schulze, of Heidelberg, communicates the observation of crystals of hæmatoidin found in the expectoration of two patients, the one suffering from hepatic abscess, chronic bronchitis, pneumonia, and a cavity containing pus, and situated between the liver and right lung, and communicating with the distended bronchi; the other from pleurisy and bronchiectatic cavities.—("Virchow's Archiv," Vol. lxi., 1874, pp. 130-139.)

Diphtheritic Tonsil.—Dr. Letzerich ("Berliner Klin. Woch.," July 13, 1874) describes the microscopic appearance of a diphtheritic tonsil in which he found sporules and micrococci of the diphtheria-fungus. The severity of the cases depends upon the fungus finding a favourable soil for development.—("London Med. Rec.," Sept., 1874, p. 564.)

Thrombosis.—Dr. Zahn ("Virchow's Archiv," Band lxii., Heft 1, Nov., 1874) distinguishes red and white thrombi. The red depend upon a coagulation of the blood within the vessels; the white are due to the deposition and gradual accumulation of colourless blood-corpuscles.—("London Med. Rec.," Dec., 1874, p. 823.)

Hæmophilia.—Dr. Simon ("Thèse de Paris") believes hæmophilia to be only another expression of rheumatic diathesis. He sustains the hypothesis of disturbed innervation causing paralytic dilatation and rupture of the blood-vessels. He refers also to the fact of rheumatism being frequently a complication of hæmophilia as well as of chorea.—("London Med. Rec.," Sept., 1874, p. 602.)

Anæmia and Nutrition of the Cardiac Muscle.—Dr. L. Perl, of Berlin, verified experimentally on dogs the clinical fact of fatty degeneration of the heart being a consequence of great losses of blood.—("Rev. des Sciences Méd.," Vol. v., 1875, p. 103.)

Peripleuritis.—This disease is very rare; it is a suppurative inflammation in the costo-pleural cellular tissue, occurring independently of traumatic causes or pleurisy. Only five cases have been reported, by Billroth, Wunderlich, and Suadicani. Bartels ("Deutsche Archiv für Klin. Med.," 1874) narrates three cases more, making a total of eight cases of peripleuritis. Bartels refers to the differential diagnosis of peripleuritis and empyema, and remarks that in peripleuritis the bulging and loss of motion is especially prominent in one or two intercostal spaces; the inferior portions of the thorax are

usually resonant, and the lower border of the lung descends during deep inspiration; further there is no displacement of neighbouring organs. The prognosis is grave; it is very important to evacuate the pus as early and as completely as possible.—("London Med. Rec.," July, 1874, p. 423.)

Pathology of Phthisis, Tuberculosis, and Pneumonia.—Waldenburg on the views of Buhl, Hering, and Friedländer ("Berliner Klin. Woch.," 1874).—Buhl distinguishes between the different diseases of the lungs as superficial or parenchymatous, and again as lobar or lobular forms. The real difference does not depend on the segments of lung affected, but on the area of the distribution of the blood-vessels. The pulmonary circulation being of a two-fold type, inflammations of the lung will either follow the ramifications of the pulmonary vessels, and permeate the pulmonary parenchyma and become lobar; or they will accompany the bronchial vessels and extend to the bronchioles and inter-lobular tissue, and thus form a kind of network of diseased lobules, surrounding healthy lung tissue, and therefore become lobular. Croupous pneumonia is superficial and lobar, catarrhal pneumonia is superficial and lobular. Neither of these are followed by pulmonary phthisis. Catarrhal pneumonia may be better described as "acute catarrhal bronchiolitis," in which the lung participates by simultaneous cedema and atelectasis with local emphysema and atrophy, as a consequence of the blocking up of the lobules by accumulated secretions of the separate terminal bronchi. Desquamative pneumonia is parenchymatous and lobar. It has its seat in the parenchyma of the alveoli, with increase in growth and desquamation of the epithelial cells in the alveoli. It has three forms:

1. Consecutive desquamative pneumonia is the lowest form, and follows severe febrile diseases, such as typhus, acute exanthemata, pyæmia, etc.

2. Genuine desquamative pneumonia is a localised expression of a general diseased condition having its seat in the lungs.

3. Caseous pneumonia is the highest and commonest form, and depends on a necrotic process, brought about by the complete shutting off of the fattily degenerated tissue from the blood-stream, through blocking and obliteration of the smaller arteries, in whose external elastic coat the inflammation is localised. Caseous pneumonia constitutes one of the commonest forms of phthisis. The cheesy degeneration leads to miliary tubercular deposits, although Buhl admits that the absorbed material which produces tubercles may be derived, not only from cheesy matter, but also from retrograde metamorphosis due to altered conditions of general nutrition.

Hering confirms Waldenburg's views as to tuberculosis not being a specific disease.

Friedländer obtained with the aid of the microscope direct proofs

"that primary products of inflammation may occur in the air-cells in the form of lymphoid corpuscles, as extravasated white blood-corpuscles quite independently of the bronchi, and irrespective of desquamated epithelium."—("London Med. Rec.," July and Aug., 1874, pp. 449, 461, and 482.)

Histology of Tuberculosis.—Dr. Th. Hering made eighty-two inoculations with tuberculous and cheesy matter, as well as with non-tubercular pus, and produced in all cases miliary tubercles in rabbits and guinea-pigs, and concludes from his experiments that tuberculosis cannot be considered as a specific infectious disease. The giant-cells were not always present, and he looks upon these as sections of lymphatic vessels.—("Mediz. Neuigk.," Erlangen, Feb., 1875, p. 45.)

Giant Cells and Tuberculosis.—Dr. C. Friedländer describes these cells as consisting of a mass of protoplasm, of considerable dimensions, and various shapes, with numerous nuclei of albuminoid nature. These cells are frequently seen in a normal state in the bones, in the uterine sinuses, and in adipose tissue; and in morbid conditions they are found in the serous membranes, in the cornea, in the pulmonary alveoli, in chronic pneumonia, in the variola pustules, in sarcoma; and, lastly, they form a constant element in tubercles. They have been considered as an essential diagnostic sign of tuberculosis, but the fact of their existence in some tissues in health and in various morbid affections makes their specific character and diagnostic value in tuberculosis doubtful.—("Berliner Klin. Woch.," No. 37, Sept. 14, 1874.)

Tuberculosis in Apes.—Dr. Lebert concludes as follows from his studies on thirty apes who died from tuberculosis in Breslau:—

1. The tubercles are seldom localised in the lungs, but are found generally in various organs, and frequently form tubercular cavities.

2. There are always in the lungs, etc., traces of preceding inflammation.

3. He considers the tubercles in all cases to be secondary to inflammation, and due to disturbed nutrition.—("Rev. des Sciences Méd.," Vol. iv., 1874, p. 92.)

Asthma.—The nature of bronchial asthma is, in the opinion of Dr. Störk, not of a purely nervous character, but is due to a primary acute swelling of the mucous membrane of the bronchioles, with increased inspiration and difficult expiration, resulting in partial distension of the lung, and a pressing down of the diaphragm, with secondary tonic spasms of the latter, and consequently greater difficulty in expiration.—("Mediz. Neuigk.," Erlangen, May, 1875, p. 156.)

CLINICAL MEDICINE.

Laryngitis Hæmorrhagica.—Dr. B. Fraenkel, of Berlin, mentions a

case of a lady, aged twenty-eight, in the last month of her fourth pregnancy, and suffering from daily vomiting, hoarseness, dyspnoea, and blood-spitting. The chest presented no abnormal symptoms. The examination of the larynx presented a blackish redness and swelling of the mucous membrane, and sanguinous discharge, but no ulcerations. By the local application of a solution of nitrate of silver and morphia, these symptoms gradually subsided in the course of a week, and entirely disappeared immediately after her accouchement. Dr. Fraenkel thinks with Dr. Semeleder, that the predisposing causes of pure laryngeal hæmorrhages are excessive vomiting and also a low degree of atmospheric temperature, as maintained by Dr. Navratil.—("Rev. des Sciences Méd.," Vol. iv., 1874, pp. 158, 159.)

Stenosis of the Air Tubes.—Dr. Weil relates three interesting cases:—

1. Compression and ultimate perforation of the trachea by lympho-sarcomatous tumours of the cervical and bronchial glands. There was pressure on the left pneumogastric nerve, and great acceleration of the heart-beats during life.

2. Compression and ultimate perforation of the trachea by a sarcoma of the thyroid gland, pressure on the right recurrent nerve, and paralysis and atrophy of the right vocal cord.

3. Presence of a nutshell in the right bronchus expelled after three and a-half months during a fit of coughing. The symptoms were:—

- a.* A whistling sound persisting the whole time up to the expulsion of the foreign body.

- b.* A diminution in the vibration of the thoracic walls of the right side of the chest.

- c.* A rumbling noise on palpation and auscultation in the whole chest.—("Deutsches Archiv," Vol. xiv., p. 82.)

Striped Pneumonia.—Dr. Steffen communicates ninety-seven cases (54 boys and 43 girls) of striped pneumonia in children. He gives this name to a disease consisting of blood infiltration of the lung-tissue with epithelial desquamation, and presenting the appearance of horizontal stripes in the lungs.—("London Med. Rec.," April, 1875, p. 215.)

Asthma Nervosum Infantum.—Dr. Guastala, of Trieste, reports a case of nervous asthma in a girl, aged seven years, of asthmatic parents, who experienced the first attack at the age of eighteen months, returning every six, and later, every four weeks; at the age of four years she was free during ten months, when suddenly a violent attack manifested itself, and after its disappearance she never had any more. This case is remarkable, as pure nervous asthma is of rare occurrence at such an early age.—("Rev. des Sciences Méd.," Vol. iv., 1874, p. 569.)

Cheyne-Stokes's Respiration.—Dr. Chvostek communicates a case

of a rare form of respiration in a man, aged 68, suffering from chronic asthma and mitral disease. The attacks of dyspnœa assumed three weeks before his death a peculiar character: respiration became completely suspended during 40—45 seconds, then it returned, effecting during the next 40 seconds, 32—36 inspirations; the pulse diminished at first, and then rose to 104—112 per minute; as long as the respiration was absent, there was also complete loss of consciousness.—(*Rev. des Sciences Méd.*, Vol. iv., 1874, p. 162.)

Dr. L. Traube explains this phenomenon, and remarks that all cases of Cheyne-Stokes's respiration are characterised by a diminution of the excitability of the nervous respiratory centre. He considers the carbonic acid to be the excitor of the nervous respiratory centre, and whenever there is an accumulation of carbonic acid in the blood, dyspnœa occurs, but the latter soon disappears, owing partly to its rapid elimination by the air cells, and partly to the fatigue following every over-excitement of the nerves. During this rest in the function of the nervous respiratory centre, the inspirations become more superficial, and gradually cease till a fresh accumulation of carbonic acid, in consequence of the pause in respiration, commences to excite *de novo* the nervous respiratory centre.—(*Rev. des Sciences Méd.*, Vol. v., 1875, p. 150.)

Dr. Baas, of Worms, proposes for this affection the name "intermittent respiration," and communicates a case as observed by him in a girl, aged eight weeks. This child died from acute hydrocephalus, and presented, during the last five hours of her life, a regular cycle of intermittent respiration; the time of the cessation, as well as that of the duration of the breathing, being the same throughout.—(*Mediz. Neuigk.*, Erlangen, Feb., 1875, p. 57.)

Dr. Hoepffner communicates a case of a patient suffering from cerebral apoplexy, who, amongst other symptoms, presented those of Cheyne-Stokes's Respiration. The patient ceased, every five minutes, to breathe for eight or ten seconds, then there was a succession of twenty rapid respirations, the normal type of breathing returned, and, after five minutes, the same abnormal breathing reappeared; this state ended fatally after six days. It is to be regretted that no post-mortem examination was performed.—(*Gazette Hebdomadaire*, Oct., 1874, p. 646.)

Dr. A. Monti has seen this form of respiration in very weak children shortly before the occurrence of death, and depending on disturbances in the nerve-centres.—(*Schmidt's Jahrbücher*, Vol. clxiv., 1874, p. 171.)

Pulmonary Blood-Extravasation in Insanity.—Dr. Jehu (*Centralblatt für die Med. Wissenschaften*, No. 22) observed five cases of insanity, where he found, after death, an extensive capillary

extravasation of bright red blood into the pulmonary tissue; during life no symptoms of pulmonary disease were manifested.—("London Med. Rec.," Dec., 1874, p. 776.)

Syphilitic Pulmonary Affections.—Dr. Reumont, of Aix-la-Chapelle ("Valentiner's Handbook of Balneology,") has successfully treated two characteristic cases, in which the smaller bronchial tubes and the sternum were affected, by combined thermal and inunction cure. Syphilitic phthisis developed out of chronic lobular pneumonia is sometimes treated by sulphur baths. Syphilis with asthma was cured in Neundorf with sulphur-baths, inhalations, and inunctions.—("London Med. Rec.," July, 1874, p. 367.)

Endocarditis Ulcerativa.—Dr. Eisenlohr ("Berliner Klin. Wochenschrift," 1874, No. xxxvi.) reports the case of a patient, aged 58, whose chief symptoms were at first bronchitis and retention of urine; for the latter the catheter had to be used, when he suddenly complained of tightness and pain in the chest, increased cough with difficulty of expectoration, headache, nausea and diarrhoea, these symptoms increasing until the sixth day, when he died. The *post-mortem* examination showed ulcers of the cardiac valves, micrococci in the myocardium, and abscesses in the spleen, kidneys and bowels.—("London Med. Rec.," March, 1875, p. 179.)

Diaphragmatic Hernia.—Dr. Leichtenstern ("Berliner Klin. Wochenschrift," Oct. 5 and Nov. 2, 1874) mentions an interesting case of diaphragmatic hernia, recognised during life and confirmed by a *post-mortem* examination. The diagnosis was based on detecting in the thorax, by combined auscultation and percussion, a hollow containing one or more cavities, changing in form and position, with absence of respiratory sounds, but presence of metallic tones on auscultatory percussion, and also of succussion sounds, bubblings, and borborygmi. After death the stomach, part of duodenum and colon were found in the left thoracic cavity; the hernial opening in the diaphragm lay an inch in front of the oesophageal opening.—("London Med. Rec.," Dec., 1874, p. 791.)

SURGERY.

Adenoid Growths in the Pharynx.—("Allgemeiner Wiener Med. Zeitung," 1875, Nos. 3, 4.) Dr. Politzer describes these growths as situated on the upper pharyngeal wall, and often complicating affections of the middle ear. For their removal he uses a ring-knife with the cutting edge towards the centre, and introduces it through the nasal cavity; after the removal of the growths he makes injections of cold water, or of a solution of common salt, through the nostrils, to stop the bleeding and relieve pain.—("London Med. Rec.," May, 1875, p. 313.)

Catheterisation of the Larynx.—Dr. Hüttenbrenner ("Jahrbuch für Kinderheilkunde," Sept. 18, 1874) discussing the recommendations by Loiseau, Bouchut, and Weinlechner, of catheterisation of the larynx, considers this operation as dangerous, and only recommends it in croup in order to gain time for tracheotomy.—("London Med. Rec.," Oct., 1874, p. 666.)

Laryngeal Growths in Children.—Dr. Klemm ("Jahrbuch für Kinderheilkunde," Feb. 1875) relates two cases of laryngeal growths:—

1. A girl, aged six, who suffered during a fortnight from laryngeal disturbances, and who died after tracheotomy; both vocal cords were found to be converted into irregular papilliform excrescences.

2. A girl, aged two and a half years, suffered since the age of three months from slight laryngeal symptoms, and being examined with the Laryngoscope, a small red polypus was observed near the posterior angle between the cords.—("London Med. Rec.," April, 1875, p. 215.)

Laryngostenosis.—Dr. Schrötter of Vienna recommends at first laryngotomy as an *indicatio vitalis*, and then dilates the contracted part of the larynx by gradually introducing bougies made of tin, and of various diameters, followed by the continuous wearing by the patient of an elastic catheter. He also uses a metallic larynx-dilatator, which he introduces into the larynx with closed branches, that gradually open by pressure of a knob or action of a screw at the free end of the handle.—("Mediz. Neuigk.," Erlangen, Oct., 1874, p. 351.)

New Method for Laryngeal Operations.—In cases of movable tumors situated below the vocal cords, Dr. Eysell introduces a needle into the middle line of the larynx, underneath the thyroid cartilage, and divides the tumors and pushes them upwards above the cords, whence they are removed with the aid of the laryngoscope.—("Centralblatt für Chirurgie," 1874, No. 20.)

Extirpation of the Larynx.—Professor Billroth presented before the Medical Society of Vienna a patient, in whom he had successfully extirpated the larynx with part of the epiglottis and the first tracheal ring, affected with epithelial cancer, and substituted the missing parts by an artificial larynx, consisting of caoutchouc. The patient exhibited perfect ease in respiration and the power of phonation.—("Wiener Medizinische Presse," 1874, No. 10.)

Pulmonary Cavities treated locally.—Dr. Mosler, of Greifswalde, tried the operation of puncturing the thoracic wall in two cases of superficial pulmonary cavities, and in one case of bronchiectasis, with subsequent injections, through a canula, of a solution of permanganate of potash, also of perchloride of iron, of carbolic acid, and of iodine; and concludes that diseased lungs can safely be punctured, and that

such treatment greatly reduces pain and fever.—("Écho de la Presse Méd.," Paris, Aug., 1874, p. 43.)

Paracentesis in Pleurisy.—Dr. L. Becker ("Berliner Klin. Wochenschrift," Nos. 41, 42, 1874) recommends the use of the aspirator in all cases of sero-fibrinous pleurisy, except in those where adhesions are present, when the operation becomes dangerous, and mentions a case that was followed by pneumothorax, compression of the lungs and death.—("London Med. Rec.," March, 1875, p. 180.)

MATERIA MEDICA AND THERAPEUTICS.

Apomorphia.—Dr. Jurasz, of Heidelberg, gave this drug in small doses in cases of capillary bronchitis to promote expectoration, and prescribed it as follows:—

R Apomorphiæ muriatis gr. $\frac{1}{8}$ — $\frac{1}{2}$; acidi hydrochlorici diluti m. v. syrup f. 3j. aquæ ad. f. 3vj., a twelfth part every two hours.—("Mediz. Neuigk.," Erlangen, July, 1874, p. 239.)

Eucalyptus Globulus.—The experiments of Dr. H. Schlager show that the effects of eucalyptus are a lowering of the blood-pressure by direct action on the musculo-motor apparatus of the heart, the drug entering with the blood into the latter.—("Schmidt's Jahrb.," Vol. clxiv., 1874, p. 242.)

Jaborandi.—Drs. Merkel and Riegel conclude from experiments made by them in health and disease, that jaborandi leaves have a powerful diaphoretic and sialogogue effect, and should be given in doses of 45 to 75 grains in infusion.—("Mediz. Neuigk.," Erlangen, May, 1875, p. 153.)

Nitrite of Amyl.—Dr. Ladendorf noticed a steady rise of temperature in forty healthy and insane persons who inhaled nitrite of amyl. The microscopic observation of a fresh drop of human blood showed that on the approach of a rod dipped into nitrite of amyl, chloroform, or alcohol, at a distance of 1—2 mm., the blood-corpuscles were rapidly repulsed. He concludes that the effect of an inhalation of these substances is a sudden repulsion of the blood-corpuscles within the pulmonary arteries, which may account for the disturbance in the circulation and respiration.—("Mediz. Neuigk.," Erlangen, Feb., 1875, p. 47.)

Effects of Volatile Substances on Breathing.—Dr. Knoll (Sitzungsberichte of the Vienna Academy, Band lxviii., Heft 4-5,) concludes from his experiments on dogs, that the effects of volatile substances on breathing vary according to the seat of application above or below the larynx, and to the nature of the substances employed. Thus the vapors of chloroform, ether, benzin, mustard-oil, and weak ammonia, have a reflex action through the vagus and produce acceleration and shallowness of the movements of respiration; a strong ammoniacal

solution, when inhaled, produces alternately retardation, deepening and cessation of expiration, and acceleration and shallowness in inspiration; carbonic acid inhalations have no reflex effects through the vagus.—("London Med. Rec.," Nov., 1874, p. 710.)

Treatment of Diphtheria.—Dr. E. Schottin, of Dresden, recommends the topical application of a solution of neutral sulphite of magnesia in glycerine, and internally, every two hours, the administration of a solution of the same salt in water (75 grains to $\frac{3}{4}$ iv. aqua).—("Archiv der Heilkunde," 1874, p. 343.)

Dr. Wagner, of Friburg, reports fifteen cases of diphtheria successfully treated with salicylic acid in doses of two to four grains, given every two hours; and also as a gargle, $1\frac{1}{2}$ parts of acid to 15 parts of spirits of wine and 150 parts of water.—("Ann. Univ. de Med. e Chir.;" Milano, May, 1875, p. 309.)

Dr. Hanow reports six cases of diphtheria successfully treated with salicylic acid (R. Acidi salicylici gr. 8; sodæ phosphat. gr. 75; aquæ f. $\frac{3}{4}$ v; $\frac{3}{4}$ ij-iv. every hour), and says that: after the third or fourth dose the diphtheritic masses began to separate rapidly, the fever disappeared, and in twelve hours recovery was established. ("Mediz. Neuigk.," Erlangen, May, 1875, p. 173.)

Dr. Clemens recommends the administration of a mixture of bromide of potassium with chlorine as a very successful remedy in diphtheria. R. Potassii bromidi gr. 30-60, Aquæ $\frac{3}{4}$ ij. one tablespoonful mixed with one teaspoonful of chlorine water every two hours.—("Mediz. Neuigk.," Erlangen, Dec., 1874, p. 401.)

Treatment of Croup.—Dr. Klemm does not administer an emetic, but wraps the patient at once in a cold wet sheet, which produces sweating within half-an-hour to an hour, and causes a reaction by augmenting the peripheric circulation in the skin. He also prescribes inhalations of lime water or of a solution of chlorate of potash, and in severe cases he administers morphia.—("Riv. Clin. di Bol.," March, 1875, p. 91.)

Treatment of Pertussis.—Dr. Burchard recommends the inhalation of the vapour of carbolic acid ($1\frac{1}{2}$ to 2 parts, and boiling water 100 parts), as a very effectual treatment in whooping cough.—("Annali Univ. di Med. e Chir.," Milano, March, 1875, p. 612.)

Dr. Wilde recommends the inhalation of the following mixture during the attack of whooping cough: R. Chloroformi, 30 parts; Ætheris, 60 parts; Essentiæ terebinthinæ, 10 parts. Pour a few drops on a folded piece of linen and apply near the mouth of the patient.—("Deutsches Archiv für Klin. Mediz.," Vol. xiv., p. 261.)

Dr. Wolkenstein considers the chief characteristics of pertussis to be spasmodic cough and catarrh of the respiratory tubes, and concludes from his experiments that the best curative effects are produced by morphia, and in a lesser degree by chloral hydrate and bromide of potassium.—("Mediz. Neuigk.," Erlangen, Feb., 1875, p. 59.)

Dr. Lesser recommends rubbing the chest twice a day with about a teaspoonful of petroleum.

Dr. Letzerich, believing in the parasitic nature of whooping-cough, advises the insufflation of the following powder: R. Quiniæ muriatis, gr. $\frac{1}{7}$, sodæ bicarbon. gr. $\frac{1}{4}$, acaciæ gum, gr. 4; M.; fiat pulvis. Use one tenth part twice a day for insufflation.—("Riv. Clin. di Bol.," March, 1875, p. 90.)

Treatment of Pneumonia.—Dr. Bauer is of opinion that the great danger in pneumonia arises from the fever, and the insufficient action of the heart, and therefore advocates the following treatment:—1. Reduction of the high temperature by cold baths, and the internal administration of quinia; 2. To sustain the energy of the heart he gives camphor and alcohol; and in secondary pneumonia he administers small doses of digitalis.—("Deutsches Archiv für Klin. Med.," Vol. xiii., p. 490.)

Treatment of Pleuro-Pneumonia.—Dr. Kunze relates two cases of pleuro-pneumonia, successfully treated by subcutaneous injections of carbolic acid (one to two syringefuls of Pravast's syringe filled with a solution containing 1 per cent. of acid). The immediate effects were a lowering of the high temperature, easier breathing, and a general improvement.—("Schmidt's Jahrb.," Vol. clxiv., 1874, p. 147.)

Treatment of Pulmonary Diseases.—Dr. Domansky recommends the inhalation of compressed air charged with turpentine or carbolic acid, in bronchitis and in phthisis.—("London Med. Rec.," Feb., 1875, p. 87.)

Atropia in Profuse Sweating of Phthisis.—Dr. Frænzel administered sulphate of atropia in seventy-five cases of phthisis with great success, and he noticed in all these cases a marked diminution of the excessive perspiration. He attributes this effect to the narrowing of the small arterioles of the sweat-glands.—("Mediz. Neuigk.," Erlangen, July, 1874, p. 215.)

TOXICOLOGY.

Poisoning by Coal-Gas.—Dr. Jacobs ("Berliner Klin. Woch.," July 6th, 1874,) observes that death is not due to suffocation, but to the coal-gas affecting the blood in its passage through the lungs, depriving the blood of its oxygen, and replacing it by carbonic oxide.—("London Med. Rec.," May, 1874, p. 489.)

Tobacco-Smoke.—O. Krause's experiments show that the poisonous effects of tobacco-smoke are not produced by nicotine, this alkaloid being decomposed during the burning of the tobacco, but are due to the carbonic oxide of the burning weed. He found in 100 volumes smoke 5 to 13 volumes carbonic-oxide and 9 to 16 volumes carbonic acid.—("Mediz. Neuigk.," Erlangen, March, 1875, p. 80.)

CLIMATOLOGY.

Mountain Altitudes and Pulmonary Phthisis.—(“Hochgebirge und Lungenschwindsucht, Beitrag zur Climatotherapie,” von Dr. A. Biermann, Leipzig, 1874.)

In this treatise the author reviews the history of the climatology of mountain altitudes, then the etiology and nature of pulmonary phthisis, and lastly, the practical application of this acquired knowledge to the climato-therapeutics of pulmonary phthisis.

He draws attention to three groups of constituents of every climate.

1. Primary : Atmospheric pressure, temperature, and absolute humidity. 2. Secondary : Air-motion, intensity of light, and electrical tension. 3. Tertiary : Relative moisture and sediments, ozone, and purity of air (mechanical or organic admixtures). In mountain altitudes the factors of the primary group are all diminished, and those of the secondary increased in direct ratio to the elevation, whilst those of the third being the result of a combination of the first two groups, are variable.

The physiological effects of mountain-climate are generally exciting, invigorating, and especially improving to the functions of respiration and nutrition. The nearer the equator the more beneficial will be the mountain climate in cases of phthisis, because the climatic factors assume a more constant character, and present fewer variations during the seasons.

He further considers the nature and etiology of pulmonary consumption; and remarks that this disease rests upon a social base, and is the result of other pathological affections of the lungs. The social base is formed by various agents, such as bodily defects in the parents, state of the soil, the dwelling, food, occupation, mode of life, and individual habits. There is a duality in the form and mode of development:—1. Primary tubercle, with secondary detritus of the neighbouring parts (phthisis); 2. Primary purulent detritus in the lung tissue (phthisis), with secondary tuberculosis of the adjoining tissues.

As to climato-therapeutics, the mountain altitudes are applicable in pulmonary consumption, the etiology, the stage of the disease, and the constitution of the individual being taken into consideration. The three primary factors, viz. : rarefied air, low and even temperature, and dryness, bear an effective relation to the functions of respiration, digestion, and of the nervous system. It may be accepted as a general rule that in pulmonary consumption a marine climate is more beneficial in reference to general disturbances of nutrition, whilst a mountain climate is especially useful with regard to local affections of a torpid character in the pulmonary organs themselves.

Mountain climate is indicated for individuals of a torpid constitution, and with a chronic type of disease, and where the state of general nutrition is not very low and still capable of reaction. Most beneficial are the effects of mountain climate in cases where the infiltration proceeds slowly from the apex to the lower parts of the lungs, accompanied with passive catarrhs; and, in cases of lobar infiltration entering the stage of cheesy degeneration with symptoms of chronic pneumonia. Amongst the complications he considers:

a. Fever with the intermittent type, the patients will improve; whilst with the continuous or remittent types they generally get worse.

b. Hectic sweats.—The dryness of the atmosphere will check profuse perspiration, but there is danger in cases of a low state of nutrition, and also when the action of the kidneys is defective.

c. Hæmoptysis.—Passive hæmorrhages may be arrested, but when much lung-tissue is affected, or the heart-action is increased, then the mountain air will prove injurious.

Mountain-climate is counter-indicated in:—*a.* Extreme cases of anæmia; *b.* Hectic diarrhœa; *c.* Morbus Brightii; *d.* Organic cardiac affections; *e.* Disease of the arteries; *f.* Emphysema; *g.* Pyothorax.

The best season for mountain-climate is the summer, but some cases may remain during the autumn and winter; but the spring is always injurious, being the time of the melting of the snow, and no one should be permitted to stay from the middle of March to the end of May.

Statistics of Mortality from Phthisis in various altitudes.—Dr. A. von Corval collected the percentage of deaths from phthisis in various altitudes in the Duchy of Baden, and thereby confirms the advantages of mountain-air for phthisical patients;—

Altitudes expressed in feet ...	1,000	2,000	3,000	above 3,000
Death-rate per 100 phthisical patients ...	1.33	0.25	0.23	0.21 %

("Rev. des Sciences Méd.," April, 1874, p. 626.)

Desert-Air.—Prof. Zittel (Munich Academy of Science) finds that the Lybian desert-air contains more ozone than the air of the Oasis or the Nile-valley, and is therefore specially recommended to patients affected with pulmonary diseases, and weak constitutions.—("London Med. Rec.," Dec., 1874, p. 768.)

Sea and Mountain-Air.—Prof. Benecke, of Marburg ("Deutsches Archiv für Klin. Med.," March, 1874) remarks that bodies part with much more heat, and the metamorphosis is more rapid, when at the sea-side than on mountain heights.—("London Med. Rec.," Dec., 1874, p. 815.)

Ozone.—Dr. Lender concludes as follows from his ozono-metric observations:—

1. The amount of ozone in the air is in direct ratio to the force and rapidity of the winds.
2. The maximum of ozone is to be found near the seashore.
3. In autumn and winter there is more ozone during the night than in the daytime, whilst in spring and summer the reverse is the case.
4. The general health improves when the air is rich in ozone.—("Rev. des Sciences Méd.," Vol. iv., 1874, p. 457.)

MISCELLANEOUS.

Street-Dust.—Dr. Lichtenstein, in a paper read before the Berlin Medical Society, gives the result of his microscopic examination of street-dust in Berlin, which consisted of silica, quartz, vegetable and animal debris and infusoria (thirteen varieties of polygastria, and three varieties of rotatoria). The evil effects of dust are irritation in the respiratory tubes, and also in the conjunctiva of the eye. To counteract these effects, the streets should be watered frequently with a solution of chloride of sodium in water, the salt preventing rapid evaporation of the water, and acting at the same time as a disinfectant. The paving should be of asphalt.—("Mediz. Neuigk.," Erlangen, May, 1875, p. 169.)

Cholera Voice.—Dr. Matterstock's laryngoscopical examination of cholera patients lead to the conclusion that the cholera voice is due to a disturbance of innervation of the muscular apparatus of the larynx.—("Rev. des Sciences Méd.," May, 1875, p. 147; and "Berliner Klin. Wochenschrift," 28 Sept., 1874.)

Asphyxia Neonatorum.—Dr. Zaunschirm ("Med. Chir. Centralblatt," April 16, 1875) succeeded in resuscitating a newly-born infant, where all other means failed, by applying the induced current of electricity during ten minutes to the larynx and thorax. He strongly recommends the adoption of this method in cases of severe asphyxia.—("London Med. Rec.," May, 1875, p. 312.)

Intra-uterine Respiration.—Dr. Hofmann communicates the case of a stillborn child, whose lungs contained air, showing that he must have respired before his birth. Dr. Hofmann considers the entrance of the atmospheric air into the uterine cavity as possible, and the respiratory attempts of the unborn child as proved. He also points out the forensic importance of this observation.—("Mediz. Neuigk.," Erlangen, April, 1875, p. 113.)

Compressed Air.—Dr. Liebig ("Aerztliches Intelligenz-Blatt," Munich) concludes, from his experiments with the pneumatic chambers at Reichenholt, that compressed air increases the absorption of oxygen, and thereby relieves chronic catarrhs, emphysema, anæmia, and amenorrhœa. It has also a mechanical

effect in facilitating the return of blood to the heart, whilst causing compression of the capillaries, and thus becomes useful in hæmorrhages, and acute catarrhal affections of the respiratory organs.— (“London Med. Rec.,” July, 1874, p. 472.)

Pneumatic Cuirass.—Dr. Hanke invented an iron and a cane cuirass for rarefying the air round the thorax. Experimenting on himself, he found the effect to be energetic, deep, inspirations. He thinks its use indicated in asphyxia neonatorum, in atelectasis, in dyspnœa of capillary bronchitis, and in rickety deformities of the thorax.— (“London Med. Rec.,” Jan., 1875, p. 38.)

Electricity applied direct to the Heart.—Dr. Sigmund Mayer (“Sitzungsberichte,” Band lxxviii., Heft 1—3, Vienna) finds that induced or constant currents, when applied direct to the muscles of the heart, produce intermissions in the heart-beats, irregular contractions, and lowering of the pressure; he therefore dissuades from electric stimulation of the heart as a dangerous operation.— (“London Med. Rec.,” Dec., 1874, p. 822.)

UNITED KINGDOM OF GREAT BRITAIN
AND IRELAND.

(Report by R. SHINGLETON SMITH, M.D., &c.)

ANATOMY AND PHYSIOLOGY.

A Diverticulum in Connection with the Pharynx.—Professor Watson records a rare, if not unique, occurrence of a diverticulum connected with the pharynx, found in an adult male human subject. A muscular tube was seen to extend from beneath the tendon of the digastric muscle, as far as the interclavicular notch of the sternum. It communicated with the pharynx just above the level of the stylo-pharyngeus muscle by a narrow slit-like orifice in the free margin of the posterior pillar of the fauces, immediately behind the tonsil; distally it terminated in a dilated cul-de-sac, containing a quantity of grumous material. It was composed of two coats—an internal tough mucous lining, resembling that of the œsophagus, and a layer of longitudinal red striated muscular fibres, the circular fibres were altogether absent. The position of the pharyngeal opening points to some modification in the closure of the first postmandibular cleft of the embryo.—(“Journ. of Anat. and Phys.,” Vol. ix., Part I, 1875.)

Cervical Ribs.—In the July number of the “Glasgow Medical Journal,” Mr. Clark reports a case of cervical ribs, in a subject of which neither the sex nor probable age is mentioned. What appeared to be the first rib on the left side was abnormally broad, being one inch and a half in length at its sternal end. There were only eleven ribs on this side, while on the right side the number was normal. With the vertebra immediately above that to which the abnormally broad rib was attached, and on the same side, was articulated a rudimentary rib, one inch and a half in length, having a well-marked capitulum and tuberculum, attached by complete joints to the centrum and transverse process of the vertebra. This rib corresponded in position to an unusually narrow but complete rib on the right side, having a well-defined scalene tubercle, lying betwixt deep grooves for the passage of the subclavian vessels, thus contrasting with its fellow on the opposite side, on which these characteristic landmarks were but faintly defined. It was discovered, on closer investigation, that the rudimentary left upper rib, and the upper rib on the right side

which was so distinctly ridged and furrowed, both took origin from the seventh cervical vertebra, and must therefore be regarded as true "cervical" ribs. Unfortunately, before a close investigation of the ribs was made, the lumbar vertebræ, together with the sternum and clavicles, had been removed; for it would have been interesting, seeing that out of twelve ribs present on each side only eleven were thoracic, to have ascertained whether the number of lumbar vertebræ had been, in compensation, raised to six. Mr. Clark quotes, as parallel to his case, that of a Chinese, recorded by the late Mr. Holmes Coote, in whom the ribs were attached to the twelve middle vertebræ (thoracic) of the trunk, six cervical vertebræ being left free above, and the same number of lumbar vertebræ below. The reporter of the "London Med. Rec." says that a fair proportion of cervical ribs support the subclavian vessels, and have been thus diagnosed even during life. Halbertsma went so far as to lay down a formula that a cervical rib 5.6 centimetres and more in length will support the subclavian artery, while one shorter than 5.1 centimetres does not support the vessel. Professor Gruber not only regards this as untenable, but asserts that the grooving of the upper surface of a cervical rib is due as much to the lower roots of the brachial plexus as to the pressure of the subclavian artery. See further, Turner "On Supernumerary Cervical Ribs," "Journ. of Anat. and Phys.," Nov. 1869; Gruber "Ueber die Halsrippen der Menschen," "Mém. de l'Acad. Imp. des Sciences de St. Pétersbourg," tom. xiii.; Henle, "Knochenlehre," s. 72.—("London Med. Rec.," Sept. 9th, 1874.)

Accessory Lobes of the Human Lungs.—Dr. E. W. Collins describes ("Transactions of the Royal Irish Academy," Vol. xxv.) the occurrence of an accessory pulmonary lobe in a male, about fifty years old, and reviews the literature of the subject. This structure, of which a figure is given, occupied the angle between the upper portion of the right lung and the posterior part of the root of the same. It was pyriform in shape, had a broad peduncle, and lay upon the bodies of the five upper dorsal vertebræ in an accessory pleural pouch, which communicated with the general pleural cavity only around the peduncle. The trachea was completely separated from the spinal column by the pouch; and the azygos vein, at the head of the fifth rib, after receiving the superior intercostal tributary, instead of arching over the bronchus behind the pleura, entered the margin of the pleural fold. This latter, moreover, covered in the accessory lobe and isolated it completely, save at the peduncle, from the upper portion of the lung.

The earliest recorded abnormality of a similar nature was that laid by Wrisberg before the Royal Society of Göttingen in 1777; and since then Rokitansky, Bouchaud, Chiene, Cleland, and Wenzel Gruber have directed attention to the same subject. Seven cases in all have been

described, Wrisberg's being the only one in which the accessory lobe was on the left side.

Dr. Collins feels inclined to give assent to Dr. Cleland's theory, that early in foetal life, from such cause as a slight adhesion of the lung to the wall of the thorax, the azygos vein, when drawn downwards by the descent of the heart so as to be made to run at a right angle to its originally transverse direction, dragged down and became enwrapped in a fold of pleura, thus deeply notching the lung instead of slipping behind both structures.

As regards certain other accessory lobes described by M. Pozzi and Professor Rektonzik, probably homologous with the "lobus impar" which occurs in lower mammals from the quadrumana downwards, Dr. Collins would consider such "as merely examples of that redundant lobulation not unfrequently seen in other viscera, and as not meriting the title or consideration of special accessory lobes."—("London Med. Rec.," Sept. 9, 1874.)

Physiology of Respiration.—Dr. Lauder Brunton gives the following table showing the chief ways in which the respirations may be accelerated or retarded:

The respiratory movements may be quickened by	{	Excitement of nerves.	{	Increased irritation of the vagus.
		Greater excitement of respiratory centre.		By action of voluntary centre.
				Increased temperature of blood.
				Increased venosity of blood.
				Action of drugs.
The respiratory movements may be rendered slow by	{	Diminished excitement of respiratory centre.	{	Diminished venosity of blood.
				Action of drugs.
	{	Nervous influences.	{	Slight irritation of cutaneous nerves.
				Action of voluntary centre.
				Paralysis of vagi.
				Irritation of superior laryngeal nerves.
			Irritation of inferior laryngeal nerves.	
			Irritation of nasal nerves.	

He goes on to describe the influence of drugs in the process of respiration. The paper cannot, however, be condensed; we must therefore refer our readers to the original.—("British Med. Jour.," Feb. 13, 1875.)

The Mechanical Work of Respiration.—Mr. B. Thompson Lowne after quoting the estimates which are commonly accepted—that of the Rev. Professor Haughton, who computes that the work of respiration is equal to twenty-one foot-tons per day, and the similar estimates of Fick and Hutchinson—endeavours to show that the work done upon the air in the cavity of the thorax is exceedingly small in comparison to the above estimates, and that the work of respiration falls very far short of the amount stated.

By taking the general formula which expresses the relation between

the velocity of moving gases and the pressure producing motion, and by ascertaining experimentally the velocity with which the air escapes from the trachea by means of light paper vanes (found to be on an average eight feet per second), the pressure required to produce the velocity in question may be calculated. This is found to amount to 6.5 grains on the square inch. On this estimate the whole respiratory work amounts to only 83.8 foot-pounds per day.

If, however, we take the largest possible estimate of the amount of friction in the trachea and bronchi, calculation gives a pressure of 68 grains on the square inch, and the whole respiratory work amounts to 936 foot-pounds per diem.—(*Journ. of Anat. and Phys.*, No. 16, May, 1875.)

Difference of the Respiratory Murmur in the Two Lungs.—Dr. Henry Kennedy, in a paper read before the Surgical Society of Ireland, gives some facts concerning the difference of the respiratory murmur in the two lungs.

In the year 1837, when Dr. Stokes' work on the lungs appeared, there was a statement in it to the effect that the greater number of individuals had stronger breathing in the left than the right lung. This most important statement seemed, from some unaccountable reason, to have been overlooked, for not a single author, as far Dr. Kennedy was aware, had noticed it, or named Stokes in connection with the point. In 1867 Flint stated that on examining some twenty-four persons he found, somewhat to his surprise, that in the great majority the vesicular murmur was loudest in the left lung. Again, in the last edition of Walshe, (1871), the author says he has grounds for changing the opinions advanced in former years, for that he now believes the respiratory murmur to be sometimes stronger in the left than the right lung. This was all the notice Dr. Kennedy could find bearing on the point; and as it seemed to him a question of much interest, he had spent considerable time in examining and tabulating a large number of cases. He could now speak of about 100: of these, in nearly 80 per cent., the breathing was strongest on the left side, and in 20 of these, again, there was a very decided increase in its intensity on the same side, which he had indicated by the plus mark. Every means had been taken to make the observations accurate. For the opportunity of carrying them out, he had been indebted to his friend Dr. Shannon. The author believed the original observation of Stokes to be correct, and he had acted on it for many years, and in several instances was able to declare that the phenomenon observed, which consisted in the greater intensity of the vesicular murmur on the left side, was quite consistent with a perfect state of health. This was important where other circumstances might lead to the idea of the invasion of phthisis.—(*Med. Press and Circ.*, Dec. 30, 1874.)

"*Researches on the Action and Sounds of the Heart*," by George Paton, M.D. (Churchill).—The first part of this volume was published in 1873. In the second part, published in 1874, the author more fully illustrates the principles on which the sounds of the heart are produced. A series of experiments was instituted on the American turtle, during the highest temperature of the season, when the action of the heart is most vigorous, and the physiological condition approaches that of a warm-blooded animal. The author maintains:—

1. That the distended aorta reacts in immediate connection with the contraction of the ventricle, closing the sigmoid valves as its impulse is imparted to the wave.

2. The sound produced in closing these valves is the first sound of the heart attaining its termination; the sigmoid valves being closed at the commencement of the arterial systole, and not by a sort of back stroke after the systole has taken place.

Certain considerations are adduced, and the following inferences are drawn from them:—

1. When the ventricle propels the blood-wave into and along the aorta, it distends its walls, more particularly at its origin, where the greatest force and momentum are exerted.

2. The distended aorta reacts in immediate connection with the ventricular contraction, closing the sigmoid valves as its impulse is imparted to the wave.

3. The closing of the sigmoid valves precedes the pulse-beat of the facial artery, at the wrist and at the extremities.

4. The sound produced in closing the sigmoid valves is the first sound of the heart attaining its termination.

5. The first sound of the heart is admitted by physicians to be synchronous with the contraction of the ventricle and reaction or pulsation of the aorta and large blood-vessels near the heart.

As, therefore, the blood does not recoil against the sigmoid valves during the dilatation of the ventricle, but in immediate connection with its contraction; and as the sound produced by the closing of the valves is not the second sound of the heart, but the first attaining its termination; we must look to another source to explain the cause of the second sound of the heart, and that is the contraction of the auricles.

From the statement of facts, and the results of carefully conducted experiments on the denuded heart of the turtle, the author concludes that the first sound of the heart is produced at the origin of the aorta, by the force with which the ventricle propels the blood into it, distending its walls, and the aorta reacts, closing the valves in impelling onward the wave. This is the termination of the beat. The second sound, so closely following the first, is the commencement of

a new beat, and is produced by contraction of the auricles as they send the blood with force through the auriculo-ventricular foramen into the relaxing parieties of the ventricle and distend it.

First sound, produced by $\left\{ \begin{array}{l} \text{Ventricular contraction} \\ \text{and} \\ \text{Aortic contraction.} \end{array} \right.$

Second sound, produced by $\left\{ \begin{array}{l} \text{Auricular contraction,} \\ \text{as the ventricle dilates.} \end{array} \right.$

Position of the Heart's Impulse.—Dr. Arthur Ransome gives some conclusions on the position of the heart's impulse in different postures of the body, based upon chest-rule measurements, taken by Mr. W. A. Patchett, at the Manchester Workhouse Hospital.

The "chest-rule," with which the measurements were made, consists of a framework of the finest spring steel, so arranged as to form a rectangular parallelogram, six inches long by three feet in width, and divided into eighteen squares of exactly one inch each.

The measurements relate to 51 individuals, and the results are given in a tabular form. The principal conclusions are as follows:—

The relation of the heart's impulse-site to the nipple, in the supine posture, varies from a position immediately under this point to one inch or an inch and a half nearer to the median line of the body; but it is noteworthy that six out of the eight cases, in which it fell vertically under the nipple, were subject either to chronic bronchitis or phthisis, and it would therefore be important to know whether emphysema or any other lesion of the lung accounted for this, probably abnormal, situation.

In the 51 cases given, the mobility of the impulse-site in different postures of the body varies considerably. The difference in its position is greater in the change of posture from side to side than in that from the lying to the upright position. In many cases (20 out of the total number) its level is the same in the upright and in the recumbent posture, and in the remainder it varies from $\frac{1}{4}$ inch to 1 inch. In nine cases it is lowered $\frac{1}{4}$ inch, in 12, $\frac{1}{2}$ inch, in 3, $\frac{3}{4}$ inch, and in 3, 1 inch. The size of the individual does not seem to make much difference in this regard, since there is as much alteration in the level of the impulse in the small as in the larger made men. One case, in which a fall of one inch occurs, is in a man at 59, with a breast bone nine inches long, who suffered from chronic bronchitis. It seems possible that some unnoticed hypertrophy of the heart may have existed in this case, but in the other two there is no suspicion of this disorder. Of three cases in which it dropped $\frac{3}{4}$ inch, one was a case of phthisis, another of chronic bronchitis, aged 74, and the third a man, aged 33, suffering from a crushed leg. It is interesting to observe that in most cases (i.e., in 60 per cent.) there was a small movement of the impulse to the left as the patient rose to the upright position, and in some

instances this occurred even where there was no sinking in the level of the heart. The extent of this sidelong movement varied from $\frac{1}{4}$ inch to 1 inch along the horizontal ordinate. In one case only was there a movement of the impulse to the extent of $1\frac{1}{2}$ inches towards the right side; and as this man was the subject of phthisis, there might well have been some adhesions, or loss of lung-substance, to account for the exception.

The extent of the movement of the impulse-site from side to side is not always discoverable, since in some cases, when the patient lay upon the right side, the heart-beat was under the breast-bone. In 12 out of the 51 cases the extent of the lateral movement was thus left uncertain; but in the remaining 39 it was traced, and was, in most instances, found to be much larger than could have been anticipated. The mean extent of the movement in the whole number of cases was about $3\frac{3}{4}$ inches, the maximum was $5\frac{3}{4}$ inches, and the minimum 2 inches.

As might have been anticipated, the degree of movement increased, in the main, with the length of the sternum—in other words, with the size of the chest: thus the mean of the eighteen cases, with less than eight inches of sternum, was 2.8 inches, that of the eleven having this bone eight or nine inches long was about 3.6 inches; the remaining ten possessing a lateral movement of over 4 inches.

One case having the maximum motion of $5\frac{3}{4}$ inches belonged to the last group. It was one of chronic albuminuria, and the patient had been confined to bed for three months; the length of his sternum was nine inches; here, again, there may have been some cardiac hypertrophy. Of the six cases with the minimum movement of 2 inches, three came within the first group, and one had a breast-bone 8 inches long; this last was a case of bronchitis in a man 30 years of age.

In most instances (27 cases), when the body was turned upon the left side, the heart's impulse remained at the same level that it had in the supine posture, but it is interesting to note that, in a fair proportion (21 cases) the heart-beat was as low as in the erect position; in 4 cases it sank even lower than this, and in twenty-two it was found at a slightly higher level.

It would be impossible to draw from these cases of disease any trustworthy conclusions as to the usual extent of the motion of the impulse-site in health; and their number is still far too small for us to gather much information as to the variations introduced by different disorders.

It is, however, already evident, that such variations do occur, and we may reasonably expect that further investigations of a similar nature will enable us to trace some definite relations between disease and the mobility of the heart. It is at least highly probable that conditions affecting the expansion of the lungs, and permitting

the relaxation of the parts composing the ligaments of the heart would manifest themselves in observations such as those now before us.

It is also important to notice what emphasis these measurements give to the caution that, in all observations upon the heart's impulse in cardiac disease, care should be taken always to place the patient in the same posture at each observation, otherwise most serious errors might easily be made.—(“Journ. of Anat. and Phys.,” Vol. ix.)

Physiology of the Cardiac Muscular Movement.—Dr. Hugo Kronecker, in conjunction with Dr. Wm. Stirling, publishes the results of some experiments on the characteristic sign of *cardiac muscular movement*.

The results tend to show that the cardiac muscles can only act equally with the help of continually new nutrient material.

If the blood or serum present in the cavity of the heart be displaced by non-injurious solution of salt, the beats sink very rapidly till they are not obvious; soon there remain only weak peristaltic movements; and lastly the heart stands still in diastole, quite incapable, even after the strongest stimuli, of executing the smallest movement. If the relaxed organ be thoroughly washed out with blood serum containing oxygen, it soon begins to make fibrillar contraction, then to beat feebly, until at last it works quite as powerfully as in the fresh condition.

The authors conclude their paper as follows:—“We have recognised the heart as an organ, with whose energising powers no manufactured machine can in the most remote degree be compared. So small in size, that a consumption of particles of tissue as the material for work—as many physiologists assert of the muscles of the skeleton—would completely consume it within a short time; it is almost immediately capable of energising as soon as it is nourished, and employs the forces at its disposal in the most complete and most careful manner for work. It completely loses its property of energising as soon as it is deprived of food, does not nourish itself therefore from its own substance, but continues without wasting, when well nourished and not maltreated, for an unlimited length of time. Not every most gentle impulse is sufficient to cause it to act, but when it has once been set in action, then less powerful impulses are sufficient to continue its movement.

“It always works with full force, and in fitting tempo; little disturbed by untimely impulses, not at all affected by a change in the strength of the stimulus, as its destiny to constant regular exertions of relatively greater weights demands. Under the same conditions (heat), which increase the decomposition of the nutrient stuffs, the mobility of its parts increases. The external conditions (cold), which diminish metamorphosis, make it at the same time more sluggish. On the contrary the heart is of little use as a reservoir. Even when at rest it extracts from the contents, touching its walls, a part of their

work-material, and is therefore, at the beginning of its activity, not in complete possession of its capability of energising without being supplied by new material."—("Journ. of Anat. and Phys.," No. 16, May, 1875.)

Blood-Circulation.—Mr. A. H. Garrod, in a paper on "some points connected with the circulation of the blood, arrived at from a study of the sphygmograph," enunciates the following propositions:—

1. The length of the interval between the commencement of the ventricular systole at the heart, and the disuse of the aortic valves does not vary when the pulse rate is constant, and varies as the square root of the length of the pulse-beat—being found from the equation $xy=20\sqrt{x}$, when x =the pulse-rate, and y =the ratio borne by the above-named part to the whole beat.

2. The length of the interval between the commencement of the primary and the dirotic rises in the radial artery is constant for any given pulse-rate, and varies as the cube-root of the length of the pulse-beat, being found from the equation $xy^1=47^3\sqrt{x}$, when x =the pulse-rate, and y^1 =the ratio borne by the above-named part to the whole beat.

3. The length of the interval between the primary and the dirotic rises, follows the same law in the carotid and posterior tibial that it does in the radial artery.—("Proc. Royal Soc.," Vol. xxiii., No. 157.)

The Forces which Carry on the Circulation of the Blood. By Andrew Buchanan, M.D., Professor of Physiology in the University of Glasgow (Churchill, 1874).—The first chapter gives an account of the forces of the heart, effective and absolute. It is calculated that the effective force moves 22 ounces of blood over 8 inches at each pulsation, or with a velocity of 10 inches per second.

In the second chapter, the vascular forces are considered. The forces mainly concerned in carrying on the circulation of the blood are:—

1. A central propulsive force.
2. The muscular contractility of the blood-vessels.
3. A central pneumatic force, or the atmospheric pressure toward the chest and heart, rendered effective by a central dilative force.

Of these, the second is, in the human system, comparatively insignificant, while the first and last divide between them the labour of carrying on the circulation, in proportion not differing much from 3 to 2.

The doctrine of Bichât, that the force of the heart extends no farther than the ends of the arteries, and that the blood receives a new impulse from the capillary vessels to carry it onward to the heart, is not to be accepted. The use of the muscular fibres of the blood-vessels is to regulate the local distribution of the blood.

The third chapter contains an account of "The Pneumatic Force."

This constitutes the third moving power of the sanguiferous system; it is the pressure of the atmosphere towards the thorax and heart, in each of which there exists an active dilative force, which the pressure of the atmosphere counteracts, and thus propels the blood onward to restore the equilibrium. Various physiological evidences and illustrations of the effects of the different pneumatic forces are given. The effects of inspiration and expiration on veins, arteries, and capillaries, the oscillation of the hæmstatic column, the entrance of air into veins, and the phenomena of asphyxia, afford evidence of the existence of these pneumatic forces. When the act of breathing ceases, the heart is deprived of all assistance from the pneumatic force of the chest; it has now to contend single-handed against all the resistances which oppose the onward movement of the blood—a task for which its utmost efforts are ineffectual: it labours and palpitates in vain; the blood accumulates in the capillary vessels of the system, it stagnates in the cerebral vessels, and death ensues. Asphyxia, therefore, consists essentially in the inability of the heart to propel the blood through the systemic vessels. This is a deduction from the doctrine of the pneumatic force of the chest, advocated by the author.

The question is raised as to the means by which the circulation is maintained during foetal life, when there is no respiration. The force of the left ventricle alone may be insufficient to propel the blood through the systemic vessels, but yet the force of both ventricles combined may be able to do so. Now, in the foetus the two ventricles combine their strength to drive the blood through the system, and they succeed. If the same amount of force be required to carry on the systemic circulation immediately before birth in the foetus, and immediately after it, in the new-born child; then the pneumatic force of the chest must be exactly equal to the force of the right ventricle of the heart.

As life advances, the pneumatic force becomes an agent of gradually increasing importance. With increasing years, a more plethoric state of the veins is apt to occur, while the influence of the pneumatic force is becoming feebler. Under such conditions, the abstraction of blood seems a natural remedy.

Effects of Position on the Blood-Circulation.—"On the issue of a spirit ration during the Ashanti campaign of 1874." By E. A. Parkes, M.D., F.R.S. (Churchill.)

A table is published showing the effect of the recumbent position for one minute on the pulse.

In one subject of experiment the pulse numbered on the average 138 after a 20 miles' walk, but came down to 96 after one minute's recumbent rest. In another the pulse numbered an average of 117 after a similar march with accoutrements, but came down to 81 after

a minute's rest. In a third the pulse ascended to 91 under similar circumstances, and came down to 74.

The table shows the effect of marching on the pulse, and how soon the heart in healthy men recovers itself in the recumbent position. On one occasion the pulse fell in one minute after lying down, from 165 to 93, or no less than 72 beats. The average fall was 43 beats in one minute. The table shows how desirable it is to let the men take off their accoutrements and lie down at the halts. Whenever it can be done, even ten minutes' rest of this kind will greatly benefit a tired heart.

Magnetic Conditions of the Blood.—Dr. Shettle gives an account of some experiments showing the paramagnetic condition of arterial blood, as compared with the diamagnetic condition of venous blood.—(“Proc. Royal Soc.,” Vol. xxiii., No. 157.)

Constrictor Action of the Intercostal Muscles.—Dr. Arthur Ransome considers that the intercostal muscles acting together may be regarded as two large muscles, having, like the rectus abdominis, ligamentous or bony portions placed at intervals in their course, modifying and in some ways increasing their power, but not altogether preventing them from exerting a combined influence, and so constricting the cavity of the chest.—(“Brit. Med. Journ.,” June 27, 1874.)

Graphical Representation of the Movements of the Thorax in Respiration.—Dr. Arthur Ransome gives further particulars of the graphical representation of the movements of the chest-wall in respiration. The observations were made by means of a three-plane stethometer, an instrument for measuring simultaneously the extent of the movement of points on the chest-wall in three directions, at right angles to one another (namely, forward, upward, and outward) during one act of breathing. In these researches certain indications were observed, which showed that the course described by the end of a rib, in respiratory action, is very far from being regular, and very different from the curve which it would produce if its movements were governed simply by the mechanical conditions of the costo-vertebral joints, and by the length and obliquity of the chord-line drawn from its anterior extremity to its head.

A number of drawings of curves illustrating the results of experiments made, for the most part, on the ends of the third pair of ribs of persons in health is given, and a few tracings are appended to show the effect of disease upon the form of the respiratory curves. In all these latter cases, the comparative feebleness of the respiratory acts is to be noticed, and the want of elasticity of the chest is evidenced by the tendency to similarity in the upward and downward track of the end of the rib. In the case of acute phthisis there is also a degree of tremulousness in the original tracing; and a case of pleurisy displays the effect of the subsequent adhesions in the very small extent

of the forward push on the affected side. The tracing of a phthisical cough is similar in its form to that of a cough in a healthy chest, although much smaller and more feeble.—("Memoirs of the Lit. and Philos. Soc. of Manchester." Third Series, Vol. v., 1875.)

Nutrition of the Tissues.—Dr. Marcet, in a pamphlet giving an account of an experimental inquiry into the nutrition of the tissues, arrives at the following conclusions:—

1. The physical constitution of a muscle resembles that of a jelly.
2. In all tissues there are three classes of substances: *a.* Those forming ripe tissue, which are insoluble in water. *b.* Those constituting the nutritive material, soluble in water, and colloid. *c.* The effete products, soluble in water, crystalloid, and diffusible.
3. The nutritive material and the ripe tissue have the same chemical composition. The mature tissue is merely the nutritive material in an organised form, the change from one to the other being purely morphological.
4. In muscle, the whole of the phosphoric acid is eliminated in the form either of a neutral tribasic phosphate or a pyrophosphate of potash. At the same time some phosphoric acid and potash are present in flesh which are not in the proportion of a phosphate, and take part exclusively in the formation of ripe tissues.
5. The albuminous constituents of muscle appear to be eliminated as creatine, creatinine, and other crystalloid substances.
6. Muscular tissue takes from the blood more potash than it requires for its formation, the excess being necessary to the elimination of phosphoric acid by converting it into a crystalloid.
7. The nutrition of lung-tissue appears to differ from that of muscles by being much more rapid, for it contains a much larger proportion of nutritive substance, and much less waste than muscular tissue.
8. Potash is eliminated from the lungs in great measure as crystalloid carbonate, instead of in the form of phosphate, as it is in the muscles. This is due to the carbonic acid in the lungs.
9. The proportion of phosphoric acid and potash is different in wheaten flour, potato, and rice, but the proportion of total to colloid, phosphoric acid and potash is very nearly the same in each.
10. Muscles in phthisis differ from the normal in containing less nutritive material and mature tissue, rather more water, and a much higher proportion of chlorine and soda.
11. In phthisis the waste of muscles occurs in the normal way, and the potash and phosphoric acid present in the effete products are in exactly the right proportion to form a pyrophosphate.
12. The emaciation in phthisis appears due mainly to the blood not being in the proper condition to supply nutritive material to

muscular tissue. The damp or wet state peculiar to muscles after death from phthisis, appears to show that in that disease their colloid state is somewhat deficient.

13. The tubercular or adenoid formation in pulmonary tissue actually undergoes nutrition, and is consequently a growth, the phosphoric acid of the potash being apparently eliminated, as in the case of muscle, under the form of a crystalloid phosphate. The nutrition of the abnormal growth accounts for the almost invariable absence of any smell of decomposition where a post-mortem examination is made shortly after death from phthisis.

14. The softening of tubercular substance appears to be due to a loss of colloid power. It can hardly be due to an increase in the proportion of water, as softening tubercle contains very little more water than healthy lung.

15. There appears to be no increase of fat in tubercle, the mean being 2.14 per cent. in healthy, and 1.95 in diseased lung tissue. The diseased lungs, however, contain more water, and the proportion of fat in their dried residue is slightly greater than in the dried residue of healthy lungs.

16. In nature, soluble matter is undergoing perpetual transformation, passing in rotation from the crystalloid to the colloid, and again from the colloid to the crystalloid condition; chloride of sodium alone appears to be an exception to this rule.—("London Med. Rec.," Sept. 9, 1875.)

ETIOLOGY.

Etiology of Paralysis of the Vocal Cords in Aneurism.—Dr. George Johnson, suggests an explanation of bilateral palsy of the larynx, which existed in two cases of aneurism, one reported by Dr. Bäumlér.—("Path. Trans.," Vol. xxiii., p. 66), and the other by himself (Vol. xxiv., p. 42.) The laryngeal muscles are pre-eminently bilateral in their action. Every one who has inspected the living larynx knows how impossible it is, in the normal condition, to move one vocal cord without at the same time moving the other in an equal degree. There is evidently, then, a very close central connection between the nerve-supply to the two sides of the larynx. In both Dr. Bäumlér's case and Dr. Johnson's the aneurism compressed not only the recurrent nerve, but also the trunk of the pneumogastric. It seems, therefore, not improbable that, while the muscles on one side of the larynx were paralysed by direct pressure on the recurrent nerve of the same side, the paralysis on the other side may have been the result of a centripetal irritation of the pneumogastric, acting on the nervous centre and through it upon the nerve-supply to the laryngeal muscles on the side opposite to the aneurism. The palsy on one side was direct; on the other, reflex. It is no valid objection to this explanation, that bilateral

palsy of the larynx does not occur in *every* case of pressure on one pneumogastric or recurrent nerve, but only in exceptional cases. It is probable that in some cases the centripetal irritation and disturbance are greater than in others.

In fatal cases of traumatic tetanus, we have an illustration of structural changes in the nervous centre resulting from peripheral nervous irritation. In the "Clinical Society's Transactions" (Vol. vi., p. 38), Dr. Johnson gave the history of a case in which a piece of flint in a wound on the cheek caused facial neuralgia and numbness, spasm of the masseter and other muscles of mastication, and palsy of the orbicularis palpebrarum and other facial muscles on the same side. All the symptoms disappeared after the removal of the foreign body from the wound. These results of a peripheral irritation are, he thinks, fairly comparable with cases of bilateral palsy of the larynx consequent on pressure upon the nerves on one side only.—("British Med. Journ.," June 29th, 1875.)

Laryngeal Disorder caused by the Pressure of an Enlarged Thymus Gland.—Dr. Finch (of Colchester) relates five cases of a laryngeal affection in children, which he attributes to the pressure of an enlarged thymus gland upon the recurrent laryngeal nerves, causing paralysis of the dilators of the glottis. The symptoms observed were persistent hoarse stridulous respiration, lasting with more or less complete remissions, for months, or even years. There was an absence of all febrile symptoms. In all the cases a projection of the upper portion of the sternum was noted, and in three there was some enlargement of the cervical glands. Two cases were fatal. In one of these the thymus was found to be greatly enlarged, occupying the upper portion of the anterior mediastinum from the second intercostal space to near the lower border of the cricoid cartilage.—("London Med. Rec.," Aug. 12th, 1874.)

Hereditary Syphilitic Laryngitis.—Dr. Drysdale reports a case of hereditary syphilitic laryngitis in a boy, aged 11. Irregular ulcers were found at the root of the tongue and around the fauces. The laryngoscope showed narrowing of the glottis, and marks of old ulceration about the epiglottis. Under treatment with iodide of potassium, great improvement was speedily manifested.—("Med. Press and Circ.," July 29, 1874.)

Causes of Consumption.—Dr. Haviland, Medical Officer of Health, showed, at a meeting in Northamptonshire, that consumption in his district could not be attributed to the usually-assumed causes, viz., the cold climate of the valley of the Nene, and the damp and clay soil of the district; for, out of a population of 10,908, only 3,654 were exposed to that peculiar climate, while three only of the twenty villages of the area lay upon the objectionable soil. Looking out for other causes—over-crowding and dilapidated houses—he

asserted that these were the two evils that destroyed the mothers and rendered their offspring weakly, so that their premature mortality went to increase the general death-rate. He urged the necessity of at once prohibiting grown-up sons and daughters, earning their own living, from incumbering the narrow chambers of their parents, where the younger members of the family are obliged to remain.—(“Med. Press. and Circ.” April 21, 1875.)

Etiology of Phthisis.—Mr. Alfred H. Huth, observes, with regard to phthisis, that hereditary predisposition has been placed in the first rank of general causes, and that phthisis is often directly inherited, is shown by the fact that infants are born with both large and miliary tubercles in their lungs. Nevertheless, the influence of inheritance has been much overrated, since former observers have overlooked many of the now recognised causes, such as damp, inflammatory attacks, etc. On the whole, probably, the average is only about 12 per cent. for direct inheritance, and for family predisposition, 48 per cent. Impure air, pythogenic fever, scarlatina, and measles, acting both directly and indirectly; the cessation of habitual discharges, miscarriages, bad confinements, over-lactation, and other weakening causes; mental oppression through its effects on the habits of life; damp from the soil; trades or occupations in a dusty or gritty atmosphere; bronchitis, whooping-cough, pneumonia, pleurisy, and injuries to the lungs; all may lead to phthisis; in the parent first, perhaps without his knowledge, and then be inherited by his child. In short, all causes which tend to a diminution of vital power are causes of phthisis, especially, perhaps, disease of the pancreas, by which the emulsion of fat is rendered difficult, while the assimilation of albuminous food, which constitutes a great part of the tuberculous matter, is specially favoured. Unfortunately, very little is known concerning diseases of the pancreas, or how they are caused. It may, perhaps, be affected by disease in the neighbouring parts, by the abuse of mercury or tobacco, and, as the greatest authorities agree, by the abuse of alcohol.—(“The Marriage of Near Kin,” Churchill, 1875.)

Etiology of Phthisis.—Dr. George Bland, in his first Annual Report as Medical Officer of Health for the borough of Macclesfield, makes some observations on the topography and causation of phthisis, the mortality from this disease having been greatly in excess of the average for England.

The total number of deaths in the borough during the year was 956, the death-rate being 26.1 per thousand. Of these the number of deaths from tubercular disease of the lungs was 102.

The silk factories being the most important source of labour in the town, it becomes a question whether this kind of occupation is in any way connected with the excessive death-rate from phthisis. On this

point Dr. Bridges and Mr. Holmes report as follows:—The silk manufacture seems a very healthy one, the only process in which any dust is generated being the “dressing of waste silk,” which, however, is by no means so bad as the carding of cotton or tow, or flax hackling: and the manual labour is certainly not severe in any part, nor is there any unnatural temperature. Dr. Bland, from his own personal inquiry and observation, comes to a similar conclusion. He believes that, with the single exception of silk waste dressing, in which, however, but few people are employed, there is no process in the manufacture of silk, calculated to injuriously affect the health.

Dr. Buchanan's observations are then quoted, in which it is shown that in certain towns, including Macclesfield, the mortality from consumption had decreased in proportion to the drying of the subsoil by means of drainage. An examination of the parts of the borough in which the fatal cases of consumption occurred showed that those parts which were ill drained had a high mortality from this disease, as compared with the better drained streets. In the district lying near the river, the dampness of the soil and the undrained state of some of the courts may partly account for the heavy consumptive mortality; but two other conditions would conduce to the result—over-crowding and defective ventilation.

Dr. Bland summarises his observations as follows:—

1. That, although there can be but little doubt that employment in cotton factories and in silk-waste dressing is a cause of consumption, yet there being but a small portion of the working-classes in the town thus employed, the mass of deaths from consumption cannot be wholly accounted for in this way.

2. That there is no evidence to prove that labour in silk factories (silk-waste dressing excepted) is a cause of consumption.

3. That there being a great preponderance of fatal cases of consumption in undrained streets as compared with streets properly sewered, there is reason to believe the defective sanitary state of the streets is one of the causes of the excess in the mortality from this disease.

4. That the wide-spread absence of ventilation in the living and bed-rooms of the cottage houses is likewise a cause of numerous deaths from consumption.—(Pamphlet; printed by order of the Local Board of Health. Macclesfield: Swinnerton and Brown. 1874.)

Pulmonary Disease, a Sequel of Diabetes.—Dr. Hilton Fagge contributes the following towards the pulmonary complications of diabetes:—

“A frequent complication of diabetes is, a destructive disease of one or both lungs, which is very like that found in the more acute form of phthisis. I have before me notes of all the cases in which

diabetes has progressed to a fatal termination in the hospital during the last twenty-one years. They are forty-five in number; and in seventeen of them this pulmonary affection was the immediate cause of death. Dr. Addison taught, and Dr. Wilks has since maintained the same opinion, that it is not a tubercular phthisis, but rather a form of pneumonia. Some writers have hesitated to adopt this opinion. I have, therefore, carefully searched our records, to see how far they support Dr. Addison's view; and I find that, in twelve among the seventeen cases, there was nothing that could fairly be identified as tubercle in the lungs; and in all of these it is either expressly stated that the larynx and intestines presented no tubercular ulceration; or, at least, no mention is made of these organs. On the other hand, it is said that, in four cases, the lungs contained grey, or miliary tubercles: and, in two of them, as well as in the remaining case, the intestines showed tuberculous ulcers. Now, such a proportion of cases in which no tubercles were found in the larynx and intestines, is, according to my experience, very different from that which occurs in any form of phthisis, apart from diabetes; and it supports very strongly the opinion that the pulmonary affection in this disease is of an inflammatory origin. It might, indeed, be urged that the development of mischief in the lungs is so rapid, that there is no time for the formation of tubercles in other parts of the body. In several cases the earliest pulmonary symptoms appeared only from two to five months before the patient's death. But that this is not the only reason why the intestines and larynx escape, is evident from one case, in which the symptoms of disease of the lungs preceded those of diabetes, and began fourteen months before death. Even in this case the intestines were free from tubercle. The pulmonary affection generally spreads through the lungs from apex to base, like ordinary phthisis: it very rapidly leads to the formation of one or more large cavities, by which the whole of an upper lobe may be excavated, and which have usually very thin ragged walls. It is generally much more advanced in one lung than in the other; but sometimes attacks both organs pretty equally. In further proof of the rapidity with which it progresses to a fatal termination, I may observe that in only one of the twenty-eight cases in which death did not result directly from this form of pulmonary disease, did the lungs present any trace of such disease. If it resembled ordinary phthisis, we may be sure that it would be commonly found, in an early stage, in those cases in which the patient dies from other causes.

Another frequent cause of death in diabetes is, ordinary "lobar" or "croupous" pneumonia. This was present in eleven out of the forty-five cases which I have collected. In four of them the hepatized parts were more or less distinctly passing into a gangrenous state. The onset of pulmonary symptoms in these cases was generally well marked,

and occurred two or three days before death."—"Guy's Hospital Reports, 1875.")

Pulmonary Consumption, a Sequel of Diabetes.—Dr. Dickinson describes the termination of diabetes in pulmonary disease as follows:—

One of the localised troubles, so frequent as almost to belong to the usual course of the disease, is a condition of pulmonary deposition and excavation which is not to be distinguished in its symptoms from a rapid form of tubercular phthisis, though there is reason to believe that it has no relation to tubercle. With this are the stethoscopic signs of rapidly increasing vomice at the apices; profuse mucopurulent, and at last purulent, expectoration; loss of appetite, hectic night sweats, and hastened wasting. The sugar in the urine lessens, and at last may entirely disappear, the secretion now, possibly for the first time since the beginning of the disease, depositing lithates. The absence of sugar from the urine in a case of this sort, when formerly it had been abundant, led me to look for it in the expectoration, which was profuse and purulent. I found none. That sugar ceases to escape is probably due to its increased consumption in the body in association with pyrexia. It is often to be observed in the course of diabetes, that the urinary sugar varies inversely with the febrile state. The sugar lessens with any chance rise of bodily temperature, and with its fall increases.

The pulmonary consumption of diabetes appears to be a form of chronic pneumonia; and inflammatory affections of the lung in more ordinary shapes sometimes bring about this end. Though fatal, they are often latent; more obvious after death than in life. Fatal œdema of the lung, marked by general coarse crepitation and rapid sinking, is not unusual.

Dr. Dickinson adopts the view inculcated by Drs. Wilks and Pavy in considering the disease of the lung in diabetes to be of an *inflammatory origin*, and as essentially different from that set up by tubercle, though resembling it in its course and results. He states that disease of the lungs contributes to the fatal end in a large proportion of the cases. Hepatisation, caseation, and excavation are common. The changes, though often simulative of tubercle, are not tubercular, for diabetic patients are very seldom the subjects of general tuberculosis. In twenty-seven post-mortem examinations there was no instance of tubercle-like changes elsewhere than in the lung, except one of caseous formation in the kidney; general tuberculosis did not exist at all. The typical grey tubercle is strikingly rare. The destructive process to which the lungs are especially prone appears to be a variety of pneumonia, chronic, circumscribed, and caseating, which rapidly leads to the formation of cavities. The general absence of grey granulations in the lung, and of tubercle-like growth in other organs, seems to justify this

hypothesis. The cheesy deposits of diabetes differ from those of tubercular origin in their more rapid excavation, and also in the fact that they are more prone to occur in the lower part of the upper lobe than at the apex.

With diabetes inflammatory affections of the lung of every kind occur, not necessarily due to influences from without, but as part of the course of the disease. Red and grey hepatisation are found, the latter tending early to breaking down, and to the formation of sloughing cavities.

Microscopic examination shows that the tubercle-like nodules of diabetes are due to a form of caseating pneumonia—the air cells are occupied by a corpuscular product indistinguishable from that of ordinary chronic pneumonia. The inter-alveolar septa often break down, many cells being thrown into one, and thus vomices of considerable size are formed; softening of the pneumonic products being the principal agency. The resemblance of the change to tubercular phthisis lies only in the limitation of the process to certain districts of pulmonary tissue. Other changes noticeable are, thickening of the fibroid septa, and marked pigmentation about the blood vessels of the affected parts.

Dr. Dickinson does not consider that these changes are due to the contact of saccharine blood, and in this respect he differs from Dr. Pavy. He found that caseous masses and cavities existed where restriction as to diet had been long and fully enforced, and he considers it improbable that saccharine blood should irritate the lung whilst it has no such effect on other organs.

The facts that the blood-vessels do not become atheromatous or the heart hypertrophied, and that no general inflammatory tendency can be traced, seem to show that the lung change must be referred to nervous agency locally directed, and not to a blood-condition, which would be more widely disseminated.

The cases in which pneumonia and pleurisy have followed injuries of nerve structure, and the results of section of the sympathetic cord in the neck, which was shown by Dr. Pavy to be a constant exciting cause of pleurisy, also the influence of nerve action on the function of the liver, seem to justify the hypothesis that just as the altered function of the liver in diabetes is due to the nervous hyperæmia originating in cerebral irritation, so the morbid state of the lung must be a similar result of the same central influence.—("Diseases of Kidney," etc., Part i., Diabetes, pp. 55—96.)

"The Nature and Varieties of Destructive Lung Disease, included under the term Pulmonary Consumption, as seen among Soldiers, and the Hygienic Conditions under which they occur," by Francis H. Welch, F.R.C.S., Surgeon A.M.D., and Assistant Professor of Pathology, Army Medical School, Netley.

This essay is the product of competition for the Alexander Prize, awarded every three years to the best essay by executive medical officers of the army on a given subject, selected by the committee; and is contained in the "Army Medical Department Blue Book" published in 1874. The subject is limited in its scope, both in reference to the class exemplifying the consumption—*soldiers*—and in restricting the enquiry to the two points—*the nature and varieties of the lung destruction, included under the term consumption, and the hygienic conditions under which they occur.* Each of these points forms a division of the essay into parts, which, while necessary for carrying out the enquiry, yet for presentation as an abstract to the reader are better considered together.

Consumption is the great chronic devastator of our army in spite of all the selecting influence of recruiting regulations, and in spite of every variety of climate; for the difference between a regiment serving abroad and one serving in the United Kingdom is infinitesimally small; in 1861 producing a loss to the service through deaths and discharges of 8.32 per 1,000 of strength, but showing a gradual decrease year by year to 1869, when the loss was 6.7 per 1,000, this decrease being mainly limited to the home segment, and going hand in hand with the sanitary improvements in our barracks and camps. It would appear a well-ascertained fact that in the army there is an excess of lung-destructive diseases as compared with the same class at the same ages in civil life, and hence this excess must be generated by the conditions pertaining to the soldier, and from which his civil brother is free. And when we consider the control exercised over the soldier in his food, drilling, clothing, exercises, climate, the knowledge of the diseases from which he suffers from the date of enlistment, owing to a regularly-kept medical history sheet, and the careful scrutiny his body undergoes in the event of death, the light thrown upon disease in general by such enquiries as the one now under consideration, cannot be over-estimated in importance, as it is impossible to obtain the same full and reliable data in civil life.

In the preface, in which consumption generally is considered, the question is discussed as to how far unity of diseased action can be deduced from the mere presence of the same histological elements in partially-destroyed viscera; the late discussion at the Pathological Society of London, being kept in view, in which the unity of the disease-process—*phthisis*—was attempted to be based upon morbid anatomy details alone. Mr. Welch regards the disease-process, consumption, as made up of two distinct periods:—(1) "A period of pathological building up, commencing with the earliest departure from the healthy lung constituents, and terminating in the production of a morbid mass, inflammatory material, or circumscribed growths; (2) a period of retrogression, in which

these morbid products either become abortive from absorption or semi-absorption, leaving a cicatrix or calcareous concretion, or form a caseous mass, or undergo disintegration with an excavation occupying the site." "This latter period is the one usually seen in our hospital wards with a community of symptoms in all cases leading to the inference of the unity of the malady, while it is to the former that we must direct our attention, to ascertain the nature of the lesions amassed under the term 'consumption,' the causation of each, and the different hygienic requirements for the prevention and curtailment of maladies so little under the influence of medicine and therapeutical measures when merging into the stage of tissue disorganisation." Whether the disease, as seen among soldiers, be similar or not to that current in civil life, is a matter for future elucidation; but in order to arrive at the modifications (if any) of lung disorganisation, characterising the military segment of the community, 230 well-authenticated cases are taken as a basis, and from a morbid anatomy standpoint, supplemented by clinical data, the first part of the essay—the enquiry into the nature and varieties of military consumption—is worked out. Each case was taken on its own individual merits, "and varieties and groups formed as differentiating features became sufficiently marked and constant to warrant the separation," and the result we give in the following extracts, from which it will be seen that the consumption among soldiers is decidedly heterogeneous in character.

In the first group, "the destructive disease of the lung occurs as an essentially primary inflammatory local lesion—inflammatory idiopathic consumption"—and in it are comprised the main forms dominant in military life. The lung lesion is regarded as disconnected with any constitutional, hereditary, or engrafted specific defects, but originating from external causes, and in conditions of the pulmonary textures thereon ensuing, the building-up stage being inflammatory in nature, and the lung destruction, brought about by chronic ulterior changes in the products." The components of this group, making up 73·81 per cent. of the total cases of military phthisis, are named after the site of the originating lesion, and the nature of the prodrome; thus we get—lobar pneumonic phthisis, a sequel to lobar pneumonia, generally acute in type—lobular pneumonic phthisis, a sequel to sub-acute inflammation of the air vesicles of a tract of tissue mapped out by contiguous lobules; hæmorrhagic phthisis, a sequel to inflammatory changes set up by extravasated blood in the air vesicles and smaller tubes; acute catarrhal phthisis, a sequel to acute inflammation of the smaller bronchial tubes and lobular impaction; chronic catarrhal phthisis, a sequel to chronic catarrhal pneumonia. Mr. Welch does not deny the potency of inherited diathesis in the causation of consumption, whether in the light of a "textural delicacy," primarily

originating in external agencies, and transmissible to offspring, in virtue of which the lungs are extra-susceptible to any noxious or irritating agency, or in the light of a congenital superabundance of adenoid tissue (scrofulous diathesis?) liable to assume a morbid character and progress under slight irritation; but from a careful scrutiny of the bodies of the individuals exemplifying the varieties of lung destruction embraced by Group I., their antecedent disease histories the general absence throughout the army of all diseases expressive of a scrofulous or inherited tubercular diathesis except phthisis, the clinical history and morbid anatomy of the cases; he considers "that a perusal of the facts adduced must satisfy the most exigent and sceptical enquirer that the cause of lung destruction in the service must be elicited from other conditions than inherent defects in the recruit enlisted, or in a constitutional diathesis subsequently unfolded." The statistics of the dispersion of this group throughout the service, show that the conditions associated with it as causations "exist throughout the stations of the whole army, though in higher rates at home, that they are constant in operation, not fluctuating greatly from year to year, that they cannot acknowledge climate as a sole or major cause, that they weigh more heavily on certain corps and branches of the service, that they were inordinately more prevalent from 1818—46 than 1860—69, and that during the latter period they show a tendency to decline, most perceptible in the home stations of the army;" moreover, it is apparent that the proportionate mortality to numbers serving, gradually increases with length of service, from a proportion of .089 among those of 1 year's service to 8.7 among those from 15 to 20 years, this being in accordance with the facts observed in the French army; and as regards age from 35 to 50 in the maximum prevalence of the disease, and from 25 to 30 the minimum; less potent at the mid-period of life when the textures are comparatively stable, and increasing toward the extremes of life—the periods of body development, and of tissue retrogression.

The natural history of the disease clearly excluding diathesis, and the statistics pointing to the immediate surroundings of the soldier, as the conditions associated with the generation of the lung-destroying lesion, and especially that mass of it in excess of the same class in civil life; these conditions are entered upon in the second part of the essay, and summarised as follows:—Vitiating barrack atmosphere inducing the sub-acute pneumonic consumption; this and chest constriction inducing the hæmorrhagic consumption; climatic variations mainly inducing acute pneumonic consumption; and climatic variations predisposed to in many instances by molecular deteriorations of the lung structures from the inspiration of impure air inducing catarrhal consumption. These causations being classed under "the exigencies

of military service," and peculiar to, or intensified by, military life as compared with that of civil employment.

To Group I. is added a sub-group, termed inflammatory specific consumption, comprising two varieties which explain themselves—syphilitic pneumonic phthisis, a sequel to vesicular inflammation of specific virus origin; syphilitic bronchitic phthisis, a sequel to tubal inflammation and lobular impaction of specific virus origin; these being linked to the inflammatory idiopathic group by the anatomical site of the lesion and course of the disorganising process, but separated from it by acknowledging a specific origin for the prodrome.

In Group II. "the destructive lung disease is observed as a visceral expression of a general agency, and the basis of construction of the class is the antithesis of the first group. A prior general feature is in existence, from which and by which the pulmonary lesion is evolved; an enthetic virus—syphilis, a constitutional diathesis, or source of adenoid infection. The involvement of the lung tissues is through the generation of pathological growth—the gummatous and miliary nodule; the subsequent phases of the local lesion consisting in changes, mainly degenerative, limited to these growths, or in the supervention of inflammatory action, and a series of consecutive processes in the combined elements of morbid production." The varieties of this group are—syphilitic gummatous phthisis, represented by a percentage of 5.65, and tubercular phthisis, represented by a percentage of 5.63.

In Group III. "the destructive lung disease occurs as an occasional sequel to other diseases of divers characters. To the component varieties the term 'alien or engrafted phthisis' is given, as expressing that the conditions under which they originated are foreign in nature to the diseased state with which they are conjoined individually, and engrafted on a lesion which forms the prefix to indicate, in nomenclature, the one from the other varieties. The lung destruction is differentiated from the former groups in these respects; it is neither idiopathic, nor dependent on a specific virus, nor has it as a rule a pathological growth as a precursor, but is a sequel to varying diseased conditions from which it is developed, or the presence of foreign bodies, and variable in nature in the several varieties." These varieties are—dysenteric phthisis, a sequel to chronic dysentery, the lung lesion originating in a pneumonic process or development of adenoid nodules; pyæmic phthisis, a sequel to embolic transference from a focus of septicæmia, the lung disorganisation being inflammatory or gangrenous; embolic phthisis, a sequel to capillary plugging from transference of particles from a fibrous coagulum, and lung destruction through inflammation or direct death; diabetic phthisis, a sequel to the general disease, the lung destruction being inflammatory and vesicular; local phthisis, originating in the trans-

ference of contiguous inflammatory action, or the presence of foreign bodies in the lung substance; the whole, however, being only represented by a combined total of 5.14 per cent.

From the foregoing it will be seen that under the terms phthisis—consumption—lung destruction—Mr. Welch considers that a wide range of diseased action is embraced; from modifications of inflammatory action rendered latent by various causes; to the adenoid nodule development in the pulmonary tissues, from a source of infection elsewhere than the lungs; including, the syphilitic virus with its influence on the respiratory organs either as an excitant of inflammation in the air vesicles or tubes, or a generator of localised fibroid growths; and those instances in which lung destruction is engrafted on other diseases assisting to a fatal termination. Yet this tabulation is not regarded as exhaustive, but provisional only, and merely expressive of the forms of lung disease in 230 well-authenticated cases. These cases are considered to embrace both of the prevalent theories upon the disease; that which would seek the lung destruction in inflammation alone, and that which presupposes an invariable precursory miliary nodule; yet neither *per se* embracing all the observed data in pulmonary destructive lesions. That which has been said of the first group, in reference to a constitutional tubercular diathesis as an agent or exciting cause of the lesion, holds equally good of all the varieties, except the pure tubercular; it is excluded in causation, from the absence of all substantiating elements. But on the other hand it is not assumed that in the majority of instances of lung destruction in the army a healthy organism is originally present, in which inflammatory chest lesions pursue a course to visceral disintegration; on the contrary, a groundwork for latency and caseation of inflammatory products and subsequent breaking up, "vulnerable constitution," is laid by the constant irritation of foul air inspiration, tropical service and its diseases, especially malaria, alcoholic imbibition and other agencies, "which either *per se* both induce that proliferation of the textural elements classed under inflammation, and conduce to latency of product; or by their general influence produce a constitutional infirmity, no less leading up to the same end, when the ordinary excitants (climatic variations or otherwise) of tubal or vesicular lesions of the lung are in operation." The products of disease in consumption are "but pathological derivatives from the normal textures, the result of morbid influence on the histological elements of the pulmonary viscera."

Turning to the clinical history and pathology of the varieties of lung destruction enumerated in the essay, lobar pneumonic phthisis is first treated of as being naturally linked with one extreme of the pathological pulmonary chain—lobar or croupous pneumonia; the lung destruction having as a precursor this inflammation, induced by

the ordinary exciting causes, its products not resolving but caseating in constitutions deteriorated from various causes, and especially alcoholism, and ultimately breaking up, forming caverns of large size in the part of the viscus involved. This form of disease is generally limited to one viscus and there localised, e.g. the base; the products of disease are all of one age—produced at the same time, and the elements (unless miliary tubercle development be superadded) are not to be distinguished from those present in any example of acknowledged lobar pneumonia. Mr. Welch considers that this form of phthisis cannot be rightly separated in a pathological point of view from acute pneumonia, both being similar in nature but modified in subsequent results by “accidental individual or constitutional peculiarities,” and several cases are given, showing the gradational links between the sthenic inflammation terminating in resolution, and the asthenic merging into chronic tissue disorganisation—phthisis. Succeeding this is the lobular pneumonic variety of lung destruction, very insidious in its onset, bilateral in implication, and involving each viscus in distinct zones from the apex downwards, so that the morbid anatomy of a pronounced case reveals each step of the process, from the accomplished and extinct destruction at the apex, through the disorganising caseous masses and crude caseous masses of the centre of the lung, to the recent lobular inflammation at the base. Examples of the disease limited to the apex are frequently found in soldiers unsuspected of all pulmonary lesion, but dying of other diseases, and it is from such cases, not coming under the classification of phthisis, and those embraced under this heading but cut short by death at an early stage from superadded pleurisy, empyema, etc., that the pathological deduction of a circumscribed lobular pneumonia being the origin of the ulterior disorganization is mainly based. This variety is regarded as one of the main forms of military lung destruction, the sub-acute inflammation being traced to foul air inspiration—impure barrack atmosphere—attacking the delicate apices first, and subsequently, if the generating factor be not eliminated, step by step the entire viscera; in the process of involvement, markedly going hand in hand with the phthisis from inspiration of particles in factories, coal, etc. Next is the hæmorrhagic pneumonic variety of lung destruction, in which blood extravasation into the air vesicles and bronchioles is regarded as the *fons mali* of the superadded inflammatory products, ultimately merging into tissue destruction. The rupture of the capillaries which allows of the outflow of the vital fluid is ascribed to a want of textural cohesion which admits of their solution of continuity under causes of congestion mechanical or functional. The inspiration of organic particles in vitiated air is brought prominently into the category of such causation; also alcoholism; while the compression of the chest walls by the tunic and

accoutrements under forced exertions, mechanically strongly tend thereto; and examples are given in which dilatation and varicosity of the lung-capillaries in soldiers are connected with advancing lung destruction, and also met with in parts of the pulmonary tissues but little, if at all, otherwise removed from health; the inference being that these vascular enlargements, from chest constriction, antedate the inflammatory and destructive processes. The position taken in this form is thus summed up:—"It is an unquestionable fact, that, in these army cases (17·82 per cent.), there is no evidence of anterior cough or thoracic disorder; the blood-spitting is the first deviation, from which ensues ultimate disorganisation." "That the instances in which it is met with in military life are connected with a tubercular or strumous diathesis receives no corroboration from careful inquiry into the individual himself, his antecedents, his parentage; on the contrary, it is decidedly negatived. It is equally clear that no miliary nodules or adenoid infiltration can be linked with it as a cause; for, in the fatal cases, it is not uncommon to find these indubitably absent. It is, also, undoubtedly the sequence of caseous inflammatory products, a direct resultant of blood extravasation." According as the blood effused is much or little, so does the induced disease partake of an acute or chronic character; if extensive, coming under the category of galloping consumption; the morbid anatomy occasionally revealing the blood-clot as the centre of the caseous or semi-caseous masses studding the viscera.

Thus far these forms are traced as originating through an inflammation of the pulmonary vesicles; but we now come to the catarrhal or bronchitic variety of lung destruction, in which the primary lesion is essentially tubal, and subsequently vesicular, the causation being mainly climatic variations, etc., acting on lungs chronically irritated by foul air inspiration, or in deteriorated constitutions; these tending to chronicity of the bronchial attack, superadded lobular infarction and latency and caseation of the disease products; affecting generally one portion of the viscus after another from the apex downwards.

This, and the lobular pneumonic variety of phthisis, are the two main forms of the military consumption, but the strongly-pronounced prodromal bronchitis, merging into patches of consolidation, ultimately disintegrating, is strongly contrasted clinically with the insidious nature of the early stage of the pneumonic variety, in which, at first examination of the patient, cavities are not uncommonly present. In the morbid anatomy of the catarrhal forms, the bronchial lesion—inflammation, thickening, ulceration, obstruction, or dilatation—is invariably a pronounced feature, and with this is conjoined hypertrophy of the framework of the lung—the pulmonary stroma—probably from both deriving their nutritive supply from the same system of vessels—the bronchial arteries. This *general* induration of the lung is by Mr. Welch regarded

as typical of this form, for although localised indurations are met with around old cavities in any variety, and localised fibrosis in the syphilitic pneumonic and gummatous forms, yet when generally present it appears only to succeed long-continued bronchial irritation, such as characterises the prodromal stage of catarrhal phthisis. We may here remark, that in those examples of fibroid hypertrophy associated with miliary nodules, Mr. Welch does not consider that the observed facts bear out the deduction of the development of the fibrous tissue from the nuclear particles of the nodule, but that on the contrary "the nuclear particles of the miliary tubercle, *per se*, showed no tendency to fibre development, and that, when these two tissues were observed conjoined, the balance of evidence favoured the idea that the fibroid excess was due to engrafted sub-acute or chronic inflammatory action just as observed elsewhere, where no nodule could be advocated as a prior element of irritation or development." Another feature which tends to differentiate the catarrhal from the pneumonic varieties, is the position of the miliary nodules in the viscus (should these growths thus become developed by infection). In the catarrhal forms the purulent contents of the tubes infect the lymphatic tissues in their outer coats, and so the miliary nodules are arranged linearly, following the course of the air passages and their subdivisions, while in the pneumonic forms the focus of infection is the disintegrating caseous mass, and consequently the miliary nodules are here arranged around the circumference of the forming cavern, and their position in the viscus is determined by it. So far as this bronchitic variety in military life is concerned, it is considered fairly to bear out the deductions of Niemeyer, "that not only the weakly, but even *homines quadrati* are by no means secure against succumbing to an acute catarrhal pneumonia, which, originating in a cold, terminates in a cheesy infiltration, and the destruction of lung tissue."

We have before mentioned the groundwork upon which the deduction is based, that these forms of soldier-consumption are disconnected with any hereditary diathesis; and Mr. Welch, in the same section, enters into the morbid anatomy details, which lead him to regard them as *due to an inflammatory process without any precursory miliary growth*. These details are mainly: the frequent localisation of all disease to the lungs (44 per cent.); its occasional limitation to one viscus (14.2 per cent.); and the nature of the morbid material constantly present in every case, intra-vesicular in site, cellular in composition, and not to be differentiated from that present in acknowledged simple pneumonia; while the inconstant morbid material characterising *certain* cases (31.5 per cent.), is noted as miliary nodules or occasional fibroid hypertrophy. The miliary nodule is regarded as an abnormal outgrowth from the normal lymphatic tissue, and

from its presence in only 31.5 per cent. of the cases; its limitation to disintegrating patches, or following the pus-distended tubes in the catarrhal variety; it is considered as secondary to the original destroying lesion, and complicating it—the “inflammatory phthisical lung having *then* become tubercular.” We have also the condition of the other viscera carefully noted in these cases, and here we find that while the average weight of the entire dead body was only 94.6lbs. the solid viscera (liver, spleen, kidneys, heart) were all, except the heart, in excess of the normal standard at the same age and height during health, and all greatly in excess relative to the diminished body weight present at death; clearly showing that the main stress of wasting in this disease falls upon the framework of the organism; while an occasional associate of the enlargement of the solid viscera was lardaceous disease, or fatty degeneration. As tending to corroborate the pathological deduction of the inflammatory nature of this large first group of military consumption, statistics are given which show that when the source from which they are drawn “is spread over a sufficiently lengthened period for the exposition of mutual bearing between one disease and another, a marked correlation is observed between the loss from chronic lung disorganization and the amount of respiratory lesions, more especially the pneumonic. Such mutuality is certainly more than mere coincidence; it indicates the development of the inflammatory lesion under the same conditions which characterise the chronic ulcerated process, it supports their identity of nature, and corroborates the pathological deduction—of the main forms of phthisis in the army being dependent on a prodromal inflammatory process,” which is apparent, clinically, in a sufficient number of cases to impress the statistical records. But this correlation *is not limited to army disease*, for extracts are given from various observers in different parts of the world, in which it is shown that the prevalence of bronchitis and pneumonia is coincident with a high ratio of phthisis, and that the absence of these acute forms determines also the absence of the chronic disease in any given community.

Passing now to the specific inflammatory lung destruction:—the most frequently met with is the syphilitic pneumonic variety; the main features of which are “the occurrence of consolidations (and when their prior history can be traced inflammatory in nature and development) in the lung textures in individuals with a clear syphilitic infection, as evinced by the specific lesions prior to the pulmonary affection, these consolidations undergoing the tyrometous metamorphosis, and passing through the objective and subjective symptoms of lung disorganization—phthisis; the post-mortem data, however, indicating no presence of gummatous nodules as local exciting agencies.” That the lungs of syphilitic subjects are especially

prone to inflammatory attacks, and also to the chronic disorganising processes, is shown in a table, and the form of pneumonia preceding this variety of lung destruction is lobular, serpigiously arranged, irregular in distribution, and implicating not only the interior of the vesicle, but also the fibrous framework of the parenchyma; consequently the lung destruction itself is very diversified in site, and partakes of the same modifying influences. The reasons for making this a special variety apart from the idiopathic inflammatory varieties are:—"The absence of all indications towards lung lesion prior to the syphilitic infection, the subsequent onset during the evolution of the virus, and especially its not uncommon coincidence with the cutaneous and mucous membrane lesions; the great susceptibility of syphilitics to lobular pneumonia and lung consolidations of a caseous nature, the extra-susceptibility of them to become victims of a 'lung destruction,' and the morbid anatomy of this and allied forms, which shows that the pneumonia and inflammatory tubercle (caseous mass) are but gradations of one process; the divergences in site of the lung destruction, as compared with the other forms, the deviations in the course and phases of the lung lesion, and especially the gradational absence, so marked a feature in the chronic varieties." In the other inflammatory variety due to syphilis—the bronchitic, the lesion commences in the bronchial tubes, occasionally by extension from the larynx, and passes to the lobules, very irregularly affecting the viscus, and having a distinct and strongly pronounced clinical prodromal stage. Both these forms are generally met with during the early evolution of the syphilitic poison, "with the specific forms of skin and mucous membrane disease, with the virus as an agent of inflammation, while the gummatous form of consumption is linked generally with the later stage, with the period of structural growths and deterioration in the internal organs."

The syphilitic gummatous variety is, as its name expresses, associated with the existence of the well known fibroid nodule. The tendency to regard these nodules as comparatively innocuous is commented upon, and it is shown that while, so long as all disorganising processes are limited to them, they may be regarded somewhat in this light, yet that they not uncommonly act as irritants and develop inflammatory changes around them, by which extensive destructions of tissue are brought about, and frequently the death of the patient. The growth of the nodule from a minute speck in the lung stroma through fibre cell germination is traced; in site "they affect no exclusive portion of the organ, and although occasionally presenting bilateral symmetry, yet this feature is far from prevailing under the general virus agency." Cases are given illustrating a localisation of all destructive phases to the gummatous nodule itself, the result being a loss only of a portion of pulmonary

tissue equal to the size of the growth, while others show a vast destruction of the organ, wrought by the double disintegration of the nodule and the superinduced inflammatory products, and it is these latter cases which clinically come under the category of syphilitic phthisis through the medium of structural growths. "As regards the period of the virus agency in the body characterised by the lung involvements through nodular growths, it is clear that the gummatous may be met with within sixteen months of inoculation; yet the majority of the cases illustrate a far more remote interval, and as far as I have been able to extend the inquiry, are invariably associated with like lesions in the organs or viscera, some one or other, connected with the so-called 'tertiary lesions.'" We thus see that Mr. Welch considers that syphilis may impress itself on the lung tissue and produce its destruction either through a pneumonic phase, a bronchitic phase, or a special growth, and that the influence of syphilis on the pulmonary viscera is decidedly underrated.

The other form of consumption, making up with the gummatous the group of lung destructions through the medium of special growths, is the pure tubercular variety embracing those cases "in which the presence of the miliary nodule as a primary element was authenticated, and in which the disintegration followed changes in the growth, solely, or in the conjoined products of surrounding morbid action." In these army cases there was a clear anterior history of ill health dependent on, and associated with, chronic textural changes, generally in the cancellated bone structure; "in all there was a long-continued existence of pus, or disintegrating chronic inflammatory products, or possible agencies of general deterioration of the system, or special infection and development of pathological growths;" and they are regarded "as in accord with the results induced by the inoculation of animals and production of lymphatic outgrowths." In this variety "the miliary growth is essential, in some instances not to be traced beyond the lungs, but in the majority more widely dispersed and implicating other viscera and the serous membranes of the cavities;" in the lungs they are "intimately bound up with the inflammatory intra-vesicular products present, and they have an anatomical relation to these in every stage of the process, which substantiates them as primary, and as originating the ulterior lesion, not merely studding the circumference of a disintegrating caseous mass but forming a component of all diseased structure present;" while the lesions in the body generally are wide spread and numerous, partly from the precursory chronic disintegrative disease, partly from the general textural deterioration, and partly from the miliary nodule and its phases in the lungs and elsewhere. In this variety the lung lesion is secondary and is only one among other structural lesions, and, as compared with the primary idiopathic inflammatory varieties, is far

shorter and more acute in its course; the lung lesion in composition and structure generally is uniform in character, the actual destruction wrought is slight, and vascular engorgement and early inflammatory products predominate over formed masses such as crude caseous tubercle.

The varieties making up the third group of consumption we have already cursorily gone over, and we may here merely remark that under "local phthisis" are brought together cases acknowledging a local causation yet variable in nature; such as the destruction induced by the lodgment of foreign bodies, hydatids, following large purulent formations of the chest wall, inspiration of coal particles, etc.; hence this variety is somewhat heterogeneous in composition.

We have thus briefly set forth the leading principles of the Essay in the differentiation of lung destructions, and briefly enumerated the main divergences between one variety and another. The subject is too vast to be treated of in an epitome, and the Essay itself may be said to be an accumulation of facts and deductions therefrom, "all theoretical ideas being discarded as far as possible" in working it out. At the end of Part I. the forms of consumption characterising the 230 cases of army lung destruction are tabulated, the prodromal and clinical details being given in one column, the pathological and anatomical in another; thus setting forth in a brief space the main features of each variety for facile comparison.

The general tendency of the Second Part of the Essay, "the hygienic conditions under which the lung destructions occur," is to show the enormous dependence of phthisis on external conditions of causation, which, unaided by any constitutional diathesis, can, and do, generate consumption. Impure barrack air, from overcrowding and defective ventilation, is shown as the main factor of the disease in military life, and corroborated by the history of other armies, the navy, experiences among the civil population, and the evidence furnished by the domesticated animals. The constituents of vitiated air of dwellings are classified as—"(a) certain gases (chiefly carbonic acid) and watery vapour; (b) organic matter—vaporious and molecular; (c) foreign particles—organic and inorganic;" the chief deleterious agent in the generation of consumption being the organic matter which, taken into the air vesicles, there lodges, and chronically irritates, inducing proliferation of the epithelium particles. The constant presence of epithelium in the barrack air is noted, as well as the not unfrequent presence of disorganisation of the lungs in some of its occupants, and the question is raised whether the emanations from these men taken into the lungs of sound men may not inoculate, and so transfer, the malady from one to the other; a point which experience among animals tends to put beyond the range of doubt. In the summary, we have "the causations of military con-

sumption arranged in destructive intensity as follows:—(a) air vitiated by respiratory and cutaneous exhalations; (b) climatic variations; (c) syphilitic virus; (d) chest construction; (e) alcoholic imbibitions and deteriorations therefrom; (f) tropical service and deteriorations; (g) other diseased states; (h) deficiency of certain food constituents. Of these *a*, *b* and *d*, have a direct influence on the pulmonary textures—*c* and *e*, indirectly through the system at large by infection—the remainder act mainly by their devitalising effect on the frame generally, and furnishing the status of body requisite for the pathological chain of events," *i. e.* for the latency and caseation of inflammatory products in the lung substance. "Seven-tenths of the mass of army lung destruction" are declared to be "decidedly within the range of sanitary measures, and consequently capable of being eradicated," and hence the keynote of this portion of the Essay is "that men are rarely born to die consumptive," that the major part of this *great mass* of phthisis is transferred to the list of preventible diseases, and is an important problem of sanitary science."

On the Nature and Variation of Destructive Lung Disease included under the Head of Pulmonary Consumption, as seen among Soldiers, and the Hygienic Conditions under which they occur.

Surgeon Nathaniel Alcock, of the Army Medical Department, considers that recent researches prove that tubercle is not due to any specific virus, but to the poisonous action of septic matter upon the leucocyte constituents of the lymphatic elements. He thinks it is established that the cause is the introduction of septic matters; and the effect—the changes in the adenoid tissue of the lungs, producing tubercle. The principal question now for consideration is, in how many different ways, and from what various sources, may the infecting matter spring from within and from without?

The nature of the leucocytes, especially their power of traversing animal membranes, and the effects of carbonic acid on the red corpuscles are commented on; the latter are disintegrated by carbonic acid, and the former tend to transude when stasis is produced.

In the upper part of the chest, by reason of the comparative fixity of the ribs, of the protrusion of the lung towards the neck, and of the tendency of heated air to ascend, the residual air must be less changed than in any other, and only effectually renewed during exercise, when the whole breathing apparatus is called into play. The blood is sent to the upper part of the chest at a disadvantage, being propelled against gravity, with but little assistance from the expansive movement of the thorax, and here it meets an atmosphere more charged than elsewhere with carbonic acid, organic matter, and other excreta, all of which tend to slacken its current and produce stagnation. Here, then, where the air-cells are largest, the capillaries in the widest meshes, and therefore longest, the air most loaded with

carbonic acid and other impurities, and where the physical and vital conditions most obstruct the progress of the blood, is the site in which, after the changes produced by inflammation, the minute blood-vessels find it most difficult to regain their normal tone and calibre.

Such are the causes owing to which, in systems already prone to delicacy, localised bronchitis hovers about the summits of the lungs, when, on the cessation of the original irritant, the other portions have, by their vital resiliency, resumed their healthy state.

Out of the globules disintegrated by carbonic acid, the transuded and devitalized leucocytes, and the occluded capillaries, a nidus of dead material is established, upon which the impure gases in the vicinity effect such changes as to render it a focus of inoculation to the adenoid tissue of the part.

Much has been written on the possible recognition of a pretubercular stage in phthisis, merely shadowed forth as it is by acid dyspepsia, disinclination to eat fat, and incipient malaise; but allusion has not hitherto been made to a not inconstant, possibly constant, evidence, which is at once the earliest and most appreciable sign, *an inability* on the part of the person in whom the requirements for the development of tubercle exist and are about to be set in motion, *to maintain the temperature of the body up to the natural standard*, the deficiency amounting to about 1 degree Fahr. in the morning, and to .5 of a degree in the evening reading.

The value of this sign first forced itself into notice by its having been accepted as a distinct proof of the non-existence of phthisis, the received typical readings indicative of the disease being those that invariably *exceeded* the natural standard at night; men, therefore, having many of the obscure premonitory symptoms, but without any of the physical signs, were, in consequence of the low temperature, confidently pronounced to owe their delicacy to some other cause than incipient consumption; yet the result unexpectedly proved that the disease had been latent at the time.

Attention was thus drawn to this peculiarity of the heat-producing functions during the preliminary period when the bioplasm was being degraded to the required level, and observation corroborated what accident had suggested.

The heat-producing powers of the system being lowered explains the extreme susceptibility of those who are threatened with phthisis to the evil influence of chills. Mr. Alcock says that not only is depression of animal heat the precursor of recognisable tubercle, but that long after deposit has taken place, diminution of temperature below the normal standard is frequently present during those intervals of local quiescence which occur between attacks of inflammation around the morbid substance.

The diagnosis of this initiatory state is of great importance,

particularly in civil life, since it is just that time at which proper adaptation of climate may postpone, if not entirely counteract the development of the disease.

This initiatory stage of low temperature may be called the first thermometric period of phthisis; in the unchecked disease it is invariably succeeded by a second and third.

The second period is unmistakably marked by a series of readings above the natural standard in the evening, and at, or below, that standard in the morning, a diurnal wave of fever passing through the system. The exertion of wakefulness, plus the peripheral irritation of the developed tubercle, is sufficient to cause such expenditure of nervous current throughout the day that there results, at evening, exhaustion with augmented heat; but the refreshment of sleep so replenishes this vital force, that at morning the temperature of the morbidly sensitive body is again depressed.

In the third thermometric period, the uncontrollable induction of the already deficient nervous force, in answer to the persistent irritation of the advancing destruction in the pulmonary tissue, maintains a temperature which, though fluctuating between a high morning and a higher evening reading, never again sinks to the normal standard.

Mr. Alcock then considers the hygienic conditions which tend to produce phthisis in the ranks of the army. An admitted and most potent source of the disease is *overcrowding*. That it should be so is rendered easily intelligible by the demonstration of the precipitating effect of carbonic acid on the blood corpuscles, by Dr. Sanderson, and the acknowledged influence of impure air on the leucocytes, whether infecting them on the surface of a wound, or reaching them by lung inspiration.

Another and more potent cause is the deleterious *influence of malaria and excessive heat* on constitutions which have subsequently to encounter a sudden change to the cold and damp of the English climate. It seems that the enervating influence of excessive heat and malaria so far lessen the tension of the capillaries that they are not only easily dilated by an irritant into an inflammatory condition, but, owing to deficiency of nerve power they are unable quickly to regain their natural calibre, and hence the train of congestions for which returned Indians have long been clinically renowned; and which, when taking place within the lungs, help the transudation of impoverished and fever-poisoned leucocytes to lay the foundation of material that will, by its decay, infect the lung lymphatics engaged in an attempt at its removal.

As a corollary to the paper from which we have made the above abstract it is suggested—

“That, to obviate as much as possible the protracted influence of

constant changes of temperature on the same individuals, each man should be permitted to be a cook only for a limited period, and that then another should take up the duty, so that the risk would be curtailed and a larger number compelled to learn a useful occupation.

"Also, that the complete transition from India to England might be broken by allowing regiments, when brought back from India, to conclude the tour of foreign service in the Mediterranean stations, instead of, as at present, commencing a service in the Mediterranean, which is to be continued in India and transferred from thence to England."—("Army Med. Rep.," Vol. xiv., 1874.)

On Wind-Pressure in the Human Lungs during the performance on Wind-Instruments.—Dr. Stone contributes a short paper on this subject to the August number of the "Philosophical Magazine." It has been stated by several writers, and has hitherto been accepted as true, that the forced expiration employed in playing upon wind-instruments tends to produce emphysema of the lungs. As, however, such pressure had never been accurately measured, Dr. Stone carefully investigated the subject. Two modes of experiment were employed:

1. On measuring, by means of a water-gauge, the extreme pressure which could be supported by the muscle of the lips both in trained musicians and in persons unaccustomed to the use of wind-instruments, the difference of variation was very great. It was found that when the lips were surmounted by a capped mouth-piece, similar to that employed in brass instruments, a greater length of the column of fluid in the gauge could be supported. The lip-muscles invariably gave way long before the expiratory power of the thoracic muscles was exhausted. It was found that the majority of untrained persons could not support more than four or five feet of water.

2. After a small gauge had been inserted into the mouth at one of its angles, various wind-instruments were tried, trained performers only being used for the purposes of experiment, and the pressure exerted being only just sufficient for the production of "an average orchestral tone." The greatest difference between the highest and lowest note was found in the clarinet, these requiring fifteen and eight inches of pressure respectively. It was noted that the force required was in general small, not exceeding or, indeed, attaining the pressure of a fit of sneezing or of coughing, and it was therefore concluded that wind-instruments are "very unlikely to injure the lungs, or to produce the emphysema erroneously attributed to them."—("London Med. Rec.," Oct. 7, 1874.)

Cardiac Disease from a simple Cold.—Dr. J. W. Martin (Paslaw), in reporting a case of cardiac disease, says he is assured that many cases of heart-disease take their origin in a simple cold, where a tendency

exists on the part of the patient to the rheumatic dyscrasia; and in such cases great attention should be directed to the heart, and the utmost vigilance exercised wherever there is morbidly excited action accompanied by roughening and "buffing" of the first sound. In such cases a knowledge of family tendencies to inheritable diseases will be of great service in guiding the physician in his treatment of what otherwise might be passed over as unimportant, and prevent such simple cases terminating in consequences the most disastrous.—("Med. Press and Circ.," March 31, 1875.)

On the Prevalence of Heart Disease among Recruits and Soldiers.—Dr. A. Leith Adams says that cases of cardiac derangements, amounting to pronounced valvular incompetency, whether dependent or not on permanent or temporary causes, are remarkably common among London recruits. Out of 1458 persons inspected by him during the last quarter of 1873, no less than 78, or 5.35 per cent., showed unequivocal indications of cardiac or of aortic disease. A large number occurred in pale anæmic lads of poor physique, but not a few in otherwise most eligible recruits. He interrogated nearly 200 young persons labouring under confirmed mitral or aortic disease, together with cases of evident pericardial adhesions; and, after making allowances for a quota not disposed to confess to any previous ailments, avowals of previous attacks of acute rheumatism were obtained from half the number. Admitting that many had been previously rejected at other depôts, which, of course, they would not acknowledge, in consequence of re-enlistment being forbidden in such cases, there are still apparently other reasons for the excess; and one, in particular, would seem to be that these persons, finding their physical incompetency to carry out their occupations, seek army service in hopes of obtaining easier employment. There is also, undoubtedly, a set, and by no means insignificant as regards number, who, from previous habits of life, are prone to contract cardiac derangements—such being the lower classes in cities, in contradistinction to agricultural labourers. So that any pronounced augmentation of townsmen over rustics might increase the percentage of disorders of the heart and its great vessels, more especially should military duty have any tendency to develop predispositions; and this appears to Dr. Adams to be established on incontrovertible data.—("Lancet," June 20, 1874.)

Heart-Disease amongst Soldiers.—Dr. W. G. Don, Assistant-Surgeon, Royal Engineers, reports two cases of *endocarditis* with fibroid vegetation and emboli. He first alludes to the special causes of the undue prevalence of endocardial disease among soldiers. They are commonly supposed to be three—acute articular rheumatism, syphilis, and chronic alcoholism.

The first is altogether denied, as the author maintains that personal

experience and army medical statistics fail to show that acute articular rheumatism is more common among soldiers than civilians. Various chronic pains, fibro-muscular and osteal, are common enough, but not acute rheumatic fever. Syphilis is admitted to be probably the determining cause of valvular and aortic degeneration in not a few of the cases. Chronic alcoholism has much to do with endocardial disease, especially in old soldiers, many of whom for many years have had alcohol circulating in the system almost every hour of the twenty-four. The rationale of the action of alcohol Dr. Don gives as follows:—Chronic alcoholism tends to cause an accumulation of imperfectly oxidized and effete products in the blood, and the presence of these, as in certain forms of gout and rheumatism, sooner or later causes changes in the nutrition of the fibro-serous structures in general, and of those of the heart and great vessels in particular.

In neither of the cases reported could the endocarditis be traced to rheumatism, syphilis, or alcohol. Both must, therefore, be attributed vaguely to general idiopathic causes, in the sum of which a leading factor was stated to be "cold."

The first case reported is that of a sapper, aged 40, who, a few days after complaining of slight feverishness, headache, bronchial râles, etc., became suddenly hemiplegic. A faint bruit was heard with the first sound, loudest at the apex, and the diagnosis made as follows:—

"Although this man never complained of cardiac symptoms, I am of opinion that he suffered (from the first) from sub-acute endocarditis, with fibroid deposits on valvular structures. Embolic obstruction of a cerebral vessel would account for the sudden hemiplegia, and the subsequent history of the case points to gradual softening of the cerebral ganglia, probably the corpus striatum, thalamus, or crus of the left side."

Post-mortem examination confirmed the accuracy of this diagnosis. It was remarked, in connection with this case, that sub-acute pyrexial symptoms occurring in old soldiers, however apparently trivial, are very often associated with endocardial or pericardial lesions.

The other case—that of a driver, aged 30, was one of aortic disease, the bruit being heard four days after the first symptoms—febrile malaise, tightness across chest, with slight cardiac pain. The character of the murmur, its sudden development, and the general symptoms and course of the disease led to the following diagnosis, verified by post-mortem examination:—"Recent evidences of endocardial inflammation, probably with vegetations on the aortic valves; pneumonia, probably with embolic obstruction; pleuritis; embolism of other organs."

From these and other cases the deduction is made that where, in this climate, at all events, sub-acute febrile or influenza symptoms

become developed, and are persistent for several days in soldiers past middle-life (and probably the majority of soldiers, pathologically speaking, are past that period shortly after thirty, or after a service of, say, fifteen years), disease of the endocardium and aorta should be narrowly looked for. All the more would this apply if the patient had ever suffered from secondary syphilis, or was known or suspected to have been a steady drinker for years.—(Appendix to Report of "Army Medical Department" for 1872, issued 1874.)

Cardiac Weakness a Sequel of Railway Injuries.—Dr. Peter Hood, in a paper on cardiac weakness as a remote consequence of injuries by railway collisions and other accidents, gives cases to show that the heart chiefly is affected by such accidents. He finds that the chief symptoms are diminished motive power of the heart, extreme languor of circulation, and a feeble pulse which is sometimes intermittent. The impairment of the mechanical power of the heart accounts for the depression, both mental and bodily, of the patient. The shock paralyzes cardiac action, but the same amount of blood exists in the body as before the accident; the heart will no longer be able to propel this quantity of blood with due energy, and continuous plethora is certain to follow. Copious blood-letting is, therefore, indicated to relieve the oppressed heart and vessels, and to enable the former to regain its power.—("Lancet," Feb. 27, 1875.)

Arterial Spasm as a cause of General Paralysis of the Insane.—Mr. George Thompson, in a paper on this subject, deduces a theory of general paralysis founded on the results of sphygmographic observations:—

The chief points in the theory are:—

1. That the organic change which exists in the very early stages of general paralysis, consists in a diminution in the calibre of the blood-vessels, which is of the nature of persistent spasm.
2. That this spasm, though persistent if left untreated, is, if recognised early, amenable to remedial means.
3. That the lesions found after death are not the cause but the results of early organic changes, that need be only of temporary duration.

The chief facts given in support of these theoretical statements are:—

1. That the pulse-tracings, taken by the sphygmograph in cases of untreated general paralysis in the early stages are precisely similar to those found in a person of good health exposed to a cold bath.
2. That the vessels of the retina and optic discs are attenuated, and the discs themselves void of their natural pink hue.
3. That general paralytics are more frequently the subjects of cerebral syncope than persons labouring under any other disease of the brain.
4. That in the earlier stages of general paralysis the temperature

of the body is lower than in health, and the skin of persons so affected is then in the condition known as *cutis anserina*.

5. That, by the administration of such remedies as are known to be antagonistic to spasmodic action, the pulse-tracing may be brought back to a healthy form, the natural appearance of the retina and of the optic discs may be regained, and the temperature of the body may be raised to the normal standard, the skin then resuming its original smoothness.

Mr. Thompson gives details concerning these facts, and avows his belief in the curative powers of Calabar bean in the early stages of general paralysis, this being the drug which, above all others, seems able to remove that over-sensibility of the arterial vascular system.— (“Journal of Mental Science,” Jan., 1875.)

DIAGNOSIS.

Laryngeal Symptoms resulting from Pressure of Aneurismal and other Tumours on Vagus and Recurrent Nerves.—Dr. George Johnson, at a meeting of the Royal Medical and Chirurgical Society, read a paper on the laryngeal symptoms which result from the pressure of aneurismal and other tumours on the vagus and recurrent nerves. The main object of the paper was to demonstrate and explain the fact that bilateral spasm and bilateral palsy of the larynx may result from the pressure of an aneurism or other tumour on the vagus nerve of one side only. The muscles of the larynx are in a pre-eminent degree bilateral in their action. This bilateral action, according to Dr. Broadbent's hypothesis, is associated with a close connection between the nerve-nuclei of the two sides; and Dr. Lockhart Clarke (“Philosophical Transactions,” 1868, Part I.) has demonstrated three sets of decussating fibres connecting the nerve-nuclei of the spinal accessory nerves. The motor fibres of the laryngeal branches of the vagus being derived from the spinal accessory, the intimate union of their nuclei of origin explains the bilateral action of the laryngeal muscles. The commissural union of the nerve-nuclei of bi-laterally acting muscles explains certain pathological facts. 1. These muscles are not paralysed in cases of hemiplegia from lesion of one hemisphere of the brain. 2. In cases of unilateral spasm (hemispasm), the bilaterally acting muscles are implicated in the spasm; the normal motor force in the first cases, the abnormal in the second, passes from the commissural centre to the nerves and muscles on both sides. 3. If the nerve-nuclei and their connecting fibres become diseased, bilateral palsy will result. Pressure on one recurrent nerve, which is an efferent motor nerve, will cause direct unilateral palsy of the larynx, but cannot cause either bilateral spasm or bilateral palsy. Pressure on the trunk of the vagus involving its efferent fibres may

cause both bi-lateral spasm and bi-lateral palsy of the larynx. Reference was made to some experiments performed by Dr. Rutherford, on rabbits. A portion of the anterior wall of the trachea was cut away, so as to expose the glottis from below. The superior laryngeal nerve was divided, and its central end faradised; this caused strong bilateral spasm of the glottis. An impression conveyed by the incident nerve to the centre was reflected through the efferent nerves to the muscles on both sides. This illustrated the mechanism of bilateral spasm from unilateral irritation. The principle was the same, whether the morbid motor influence pass downwards from one hemisphere of the brain or upwards from one afferent nerve to the common centre of the two pneumogastric trunks. When the recurrent nerve was divided and its lower end faradised, or when the lower end of the divided vagus was galvanised, the result was unilateral abduction of the vocal cord in consequence of the stimulus acting on the efferent fibres of the recurrent. The results of these experiments were essentially the same as those which had been previously obtained by others, in particular by Rosenthal (*"Die Athembewegungen,"* Berlin, 1862), and by Waller and Prevost (*"Archives de Physiologie,"* Tome iii., 1870). The long-continued irritation of the trunk of the vagus by the pressure of an aneurism cannot be imitated by any artificial means; but the general result of these experiments is to support the theory that continuous irritation of the trunk of one vagus may through its afferent fibres so disturb the common centre of the two vagi as to cause either bilateral spasm or bilateral palsy of the larynx. Reference was made to facts illustrating the influence of a peripheral irritation in exciting, through a reflex nervous influence, pathological changes in distant parts. In traumatic tetanus, a peripheral irritation may not only excite a general muscular spasm, but also serious structural changes in the spinal cord. A foreign body in a wound on the cheek excited facial neuralgia, facial palsy, and trismus. The passage of a calculus through the ureter may excite not only pain but inflammation in the testicle. Irritation of one eye by overwork at the microscope or by a foreign body may set up a reflex inflammation in the other eye. The more intimate the nervous connection between two parts, the greater is the probability that disease in one may excite disease in the other. How great, then, is the likelihood that irritation of the trunk of one vagus will gradually excite functional disturbance and even structural change in the nervous centre, and in the associated nerve on the opposite side. Pressure on one recurrent nerve would never cause serious dyspnœa, but pressure on the trunk of one vagus, by exciting either bilateral spasm or bilateral palsy of the larynx, is a frequent cause of urgent and even fatal dyspnœa. The dyspnœa, which is the result of laryngeal spasm, occurs in paroxysms; it comes on and

passes off with equal suddenness, while the stridor and dyspnœa, which result from laryngeal palsy, come on more gradually, and are more persistent. The laryngoscope is essential for the exact diagnosis of these painfully interesting cases. Reference was made to the case of a young man, who died in a paroxysm of laryngeal obstruction from what was supposed to be acute laryngitis. The case occurred long before the laryngoscope had been invented. After death, the larynx was found healthy, but a cancerous tumour in the chest had implicated the left vagus and recurrent nerve. In another case, hoarseness, cough, and stridor were at first supposed to depend on laryngitis, but the laryngoscope showed a healthy larynx. An aneurism was suspected, and soon caused death by hæmorrhage into the œsophagus. The aneurism (of the aorta) had compressed the left vagus and recurrent. With reference to the question of tracheotomy, the main point is to distinguish between the laryngeal palsy or spasm, the result of pressure on the vagus, and narrowing of the trachea by the direct pressure of an aneurism. In the first class of cases, tracheotomy may afford great temporary relief, while in the second the operation would be worse than useless. It was found that when a rabbit was under the influence of chloroform, no laryngeal spasm was excited even by faradising the central end of the superior laryngeal nerve. The result is analogous to the influence of chloral hydrate in preventing or lessening laryngeal spasm. In the course of the experiments upon rabbits, it was found that, after division of the superior and inferior laryngeal nerves on both sides, the animal closed the glottis during the act of deglutition. Dr. Rutherford suggested that this closure of the glottis might be effected by constrictors of the pharynx; and, after dividing the constrictors on one side so as to suspend their action, the glottis remained quite motionless. It appears that during the act of deglutition the pharyngeal constrictors have the power of pressing together the arytenoid cartilages, and thus closing the glottis. This experiment is confirmatory of Longet's observations made in the year 1841.—("Archives Générales de Médecine," Tome xii., 1841;) ("Brit. Med. Jour.," Dec. 26, 1874.)

Rhonchus Crepitans.—Dr. Octavius Sturges, in a note on the mode of production of crepitant rhonchus, objects to the ordinarily-received explanation of this sound, and adds—

"If, then, neither bubbling nor sticking is at the bottom of this sound, what remains? May it not be that it is produced by an agency strictly analogous to that which will cause a similar sound out of the body—not the rubbing of the lock, or the explosion of salt, but the squeezing of moistened animal membrane?

"I suppose, with others, that the condition of lung—be it pneumonic or not—which is essential to the production of crepitant rhonchus is a condition of œdema; that the air-sacs, and the air-sacs alone, contain

fluid. In true pneumonia, probably, this effusion will not be equally distributed; some cells will be full of it, others less full, and some empty, and even over-dry. Moreover, the consistence of the exudation will be watery in one part, more viscid in another, and in some places beginning to coagulate. This is in accordance with the pattern, not, indeed of all, but of most pneumonias that we come to see after death; the process advances unevenly, so that various stages of inflammation are to be found side by side in the same lobe."— ("Lancet," June 13, 1874.)

Diagnosis of Pulmonary Catarrh accompanying Typhoid Fever.—Dr. Samuel Gee, in a paper on Typhoid Fever, makes some remarks on the accompanying Pulmonary Catarrh. He says:—"In my opinion, the history of pulmonary catarrhs which Laennec left us has never been equalled, much less surpassed. In one place he says that a most interesting result, which he gained from auscultation, was the constant existence of a latent or manifest pulmonary catarrh throughout the whole course of continued fever. Not so absolutely true as another remark of his, that when the catarrh is simple (uncomplicated with any other form of pulmonary disease), however intense it be, the chest sounds well to percussion all over. Even in our modern books upon physical examination of the chest, although the percussion signs of pulmonary catarrh are not put aside so summarily, I do not find any mention made of a state of things which formerly perplexed me many times. What I refer to is this. You examine the chest of a patient (especially a child or lean adult) whom you deem to be suffering from typhoid fever. You percuss the chest with all due care, and you find marked lack of resonance at one apex, in front only, or both back and front. Now, if there be, at the the same apex, more or less bronchial breathing also (likely enough a natural peculiarity), and mucous râles, the assembly of such signs causes perplexity, especially if the patient be seen for the first time. In other words, the question rises, whether the disease may not be an acute typhoid phthisis—phthisis, that is to say, in the true meaning of the word, ulceration of lung. I do not speak of diffused miliary tubercles; the diagnosis between the latter disease and typhoid fever is spoken of in many books. However, I have learned to disregard these phthinoid signs, and to look upon them as part and parcel of the catarrh. They go away with the catarrh; sometimes, leaving the first place, they settle in another. But concerning the cause of the dulness to percussion I have nothing to suggest save the opinion, drawn from similar cases, that a considerable catarrhal infarctus of a part of the lung soon becomes accompanied by congestion and œdema of the affected portion."— ("St. Bartholomew's Hospital Reports," Vol. x.)

Phthisical Sputum.—Dr. Sawyer, at a meeting of the Birmingham and

Midland Counties Branch of the Brit. Med. Association, read a paper calling attention to the examination of sputum by the method first suggested by Dr. Fenwick. Boiling with a solution of caustic soda destroys the ropiness of the sputum, and allows any suspended matter to subside. We may thus find, in the sediment collected at the bottom of the test-tube, the yellow elastic fibrils forming outlines of the air-cells, and other substances which resist the action of the caustic solution. The mucus, pus, and other corpuscles are destroyed, and accordingly lung tissue can be detected by this method when present only in very minute and very few fragments.—("Brit. Med. Journ.," Jan. 9, 1875.)

Temperature in Phthisis.—Dr. C. Theodore Williams deduced from a number of observations (Royal Medical and Chirurgical Society), amounting to between 4,600 and 5,000, certain conclusions which may be summarised as follows:—In many cases of chronic phthisis the temperature is normal, and often below normal, even as low as 93° to 94° Fahr.; this is especially seen continuously in the first and third stages when quiescent. In pyrexial cases the temperature is seldom very high, 104 — 106 being the highest recorded in any case. In the majority of cases at all stages, a marked rise takes place after 2 p.m.; and a rapid fall occurs after 10 p.m.; which continues throughout the night, and reaches the minimum, which may be as low as 94° , before 7 a.m.; a slight recovery is then observed, but the normal is seldom attained till 9 or 10 a.m. This temperature curve may be shifted a few hours, the rise taking place later in the afternoon, and the high temperature prolonged longer into the night, the lowering being consequently delayed by some hours. Any continuous rise of temperature is followed by a certain amount of collapse, though not always a corresponding degree. At all stages of the disease the afternoon rise, the nocturnal fall, and early morning collapse occurred, and observation on a healthy man, under similar conditions, showed that this fall was characteristic of phthisis. In the first stage there is a more gradual rise and fewer extremes than in the third. In the second the condition is intermediate between the active forms of the first and third stages. In the active third stage the greatest variations were observed, the afternoon exacerbation and the nocturnal collapse being most strongly marked; in one case the thermometer rose to 104° and sank to 93° , a range of 11° Fahr. In some cases tubercle appears to form, and the various processes of disorganisation of the lungs proceed uninterruptedly, without causing any considerable rise of temperature, and they may even be accompanied by a temperature below normal, and the author believed that this might be explained by the influence of the disease tending to produce a condition of collapse. He ascribes the course of the temperature to the two influences of—(1) the excessive action of the processes engaged in the maintenance of the

bodily heat; and (2) the tendency to collapse from weakening of the bodily powers—these two struggling for the mastery; the effect of the former being seen in the afternoon and evening rise, and of the latter in the rapid nocturnal fall to the morning temperature, and also in the subnormal temperatures occasionally seen in all stages of the disease, even while active tuberculation is going on. The author believes that phthisis has a distinct temperature course, and that the idea of a dependence on individual idiosyncrasy is founded on imperfect observations; the irregular course observed in the last stages of the disease is also a source of fallacy, and is due to the conflicting forces at work.—(*"Lancet,"* Jan. 30, 1875.)

Spirometry.—Dr. Jagielski, at a meeting of the Medical Society of London, on March 15, 1875, pointed out the various factors which influence vital capacity in health and in disease.

When the spirometer shows that the patient does not expel the normal quantity of air, the causes of the deficiency may be of a twofold kind; they may be general, including a feeble general organisation, a want of muscular power, a weak digestion, an impaired nutrition, disturbance of mind, sorrow, anxiety, etc., and a tendency to pulmonary consumption; or they may be local, including flatulency, liver disease, ascites, abdominal tumours, congestion and inflammation of the lungs, pleuro-pneumonia, pleuritic effusions, etc. The spirometer would be found useful for the purpose of detecting disease when no other physical means would discover such slight changes in the lungs at so early a period, as in miliary tuberculosis. The instrument would also be of use in ascertaining, roughly and readily, the pulmonary soundness of recruits, and of candidates for life assurance.—(*"Lancet,"* April 3, 1875.)

Diagnosis of Heart Disease.—In a lecture reprinted from the *"Edinburgh Medical Journal"* for June, 1874, Dr. George W. Balfour discusses the diagnosis of cardiac disease generally, with special reference to the value of the information derivable from the symptoms and the physical signs. Under the head of inspection, he makes the following observations on the diagnosis of adherent pericardium: "Depression of the precordial region is much more rare than its elevation, and is the result of previous pericarditis and the indication of the adhesion of the visceral and parietal portions of the pericardium. We must distinguish between a permanent and general depression of the cardiac region and those rhythmical depressions of the intercostal spaces which occur over the apex, or even over a more extended portion of the heart's surface; which are often the result of adhesions of the pericardium, not only to the heart but also to the pleura and through that to the walls of the chest; but which are sometimes, especially on thin-walled chests, the simple result of atmospheric pressure depressing the inter-

costal spaces at the moment of cardiac contraction where no adhesions exist: this form of rhythmical depression being invariably associated with some degree of enlargement—not always hypertrophy—of the heart and consequent displacement of the lung." And again: "In rare instances, a pulsatory movement is also communicated to the epigastrium through the movement of the heart's apex during the ventricular systole, pulling upwards an adherent pericardium, diaphragm, and liver. This movement is, of course, exactly the reverse of that in ordinary epigastric pulsation. As this extensive adhesion is, as a rule, only the result of a severe and extended inflammation, affecting uniformly the whole surface of the heart, we can readily understand how, in such circumstances, a universal undulatory movement may be perceived, in which, when the heart's action is at all rapid (over ninety beats per minute), it may be difficult to say what parts of the motion are systolic and what are diastolic. In these circumstances, the variations in time between the movements of any two parts are readily rendered visible, by attaching to each, by means of a pellet of bees'-wax, a bristle carrying a small paper flag; and when the pulse is over ninety, this is the only way in which such differences can be ascertained with any certainty; and it is a means of attaining certainty of diagnosis often of much importance, especially when we have pulsations visible above the fourth rib, which may possibly be either aneurisms of the aorta or pulsations of the auricle."

In percussing the præcordium, Dr. Balfour takes as the vertical line not the left sternal border, but a line one inch to the left of that, which shall be uninfluenced by the aorta and the pulmonary artery.

Dr. Balfour says, that an *accentuated pulmonary second sound* is "constantly present in every form of cardiac disease involving obstruction to the onward flow of blood, and is the most persistent of all the acoustic phenomena indicative of cardiac disease, being frequently the only thing markedly abnormal to be detected." On the other hand, "accentuated closure of the aortic semilunar valves, from a general or systemic cause, is not to be thought of; it can only arise from some local cause." He does not believe that increase of arterial tension has this effect; and "arrives at dilatation of the ascending aorta, chiefly, and, partly also, of the innominate artery, as the sole active causes in producing accentuated closure of the aortic semilunar valves." As regards endocardial murmurs, Dr. Balfour insists upon the fact that no murmurs, except the auriculo-systolic, the so-called presystolic murmur, can ever be accepted as a definite sign of actual cardiac disease.—("London Med. Rec.," Sept. 9, 1874.)

Diagnosis of Fatty Heart.—Dr. Leonard H. J. Hayne says that whilst serving as assistant-surgeon of Greenwich Hospital he had the opportunity of seeing a number of fatal cases of fatty degeneration of

the heart in old men. These were generally rapidly fatal, and were seldom much benefited by remedies. Stomach derangements, accompanied sometimes by constipation, but more generally by diarrhœa were prominent symptoms in this fatal malady; frequent vomiting occurred in nearly every case which came under his notice, and seemed to be a sign almost pathognomonic of this disease.—("Lancet," Jan. 9, 1875.)

Cardiography.—Dr. A. L. Galabin, at a meeting of the Royal Medical and Chirurgical Society, read a paper on the construction and use of a new form of cardiograph. The most perfect cardiograms hitherto obtained have been those procured by the application of the sphygmograph directly to the apex of the heart. There are two difficulties in applying the sphygmograph to the heart: in the first place, the extent of the cardiac motion varies very widely, and when the heart is hypertrophied, it becomes far too great to be recorded; and, in the second place, the frame-work, as well as the spring-pad, is influenced by the cardiac impulse in cases in which the apex-beat is diffused. The cardiograph invented by the author is such a modification of Marey's sphygmograph that those two difficulties may be avoided, and tracings obtained in all cases direct from the apex of the heart. In order to attain this object, the knife-edge, by which motion is communicated to the recording lever, is not rigidly connected to the spring-pad, but is attached by a sliding bar, which can be fixed in any position by a screw.

In this way, the amount of amplification given to the motion can be varied from about ten to a hundred times the original. The instrument is also attached to a movable frame in such a way that the wooden bars on which it rests can be separated to a width of five inches, and the brass work can be raised or lowered at either end; it can thus be adapted to a chest of any size or shape. In tracings obtained by this cardiograph, the thrill which accompanies a murmur is often depicted as a vibratile line in the curve, and then the exact relation of the murmur to systole and diastole is permanently recorded. The shape of the systolic part of the curve indicates the proportion which hypertrophy bears to dilatation, while aortic regurgitation is shown by a rapid ascent during diastole.—("British Med. Jour.," May 22, 1875.)

A number of cases are given (in "Guy's Hospital Reports," 1875,) to show the use of this instrument in cases of cardiac disease, and a general review of all the tracings suggests the inference that the evidence of the cardiograph favours the view, that two totally distinct murmurs may be caused by mitral contraction—first, the auricular systolic bruit, which may either run up to the first sound or be separated from it by a short interval; and secondly, a diastolic bruit, due to the venous flow through the narrow

and roughened orifice, which in rare cases may be blowing in quality and separated from the succeeding systole by a long pause; and that, thirdly, these two may be merged together into a compound murmur, somewhat rough from its commencement, but much intensified in loudness and harshness towards its conclusion. The proportionate number, out of the cases of mitral contraction, in which the diastolic murmur was at times audible, would seem to indicate that it is not so rare as it has been considered to be by the very few authors who have recognized it as distinct in rhythm and causation from the pre-systolic murmur. In that case, however, it is heard only occasionally, and sometimes it is very faint.

No cardiograms were met with which seemed at all to indicate that the auricular contraction had been transferred in rhythm to the preceding ventricular systole, and so formed the termination instead of the commencement of each revolution of the heart.

A method of determining the difference in time between the impulse of the heart and the pulse in various arteries.—Note by Dr. McKendrick. His method is similar to that of Landois, of Griefswald. It consists of—

1. Mechanical arrangements, like the button and lever of the sphygmograph, by means of which the pulse breaks and forms an electric current.

2. The current works an electro-magnet having a rod for the support of a pencil or pen attached to the keeper. The end of this rod is brought into contact with a plate of glass caused to move rapidly, but at a uniform rate, horizontally in front of it. Two of these electro-magnetic arrangements are fixed firmly to an upright support, one of them being in connection with the apparatus on the heart, while the other is in electric communication with the apparatus on the pulse.

If both markers be now brought up so as to touch the cylinder or the glass plate in the same vertical plain, the two marks caused by the action of the two electro-magnets will be exactly in the same vertical line, so long as the two magnets act simultaneously; but if one act an instant later than the other the two marks will not be in the same vertical line. The horizontal difference between the two marks expresses, therefore, the time between the action of the two electro-magnets. With one apparatus on the heart and another on the radial pulse the electro-magnet in connection with the latter acts an instant later than the one in connection with the former.—(*"Edin. Med. Journ.,"* July, 1874).

Sphygmography.—Staff-surgeon Boileau, in a thesis for the degree of M.D. at Dublin, discusses the value of the sphygmograph as a means of clinical research. Concerning the cause of dirotism, he says that, on account of the retardation it experiences when it arrives at the mesh of capillaries, "the blood is delayed in its passage through the artery,

and this delay is represented in the trace by a corresponding elevation or curve in the down stroke; the blood-volume swells, as it were, by reason of the obstruction *à fronté*, and thus is formed what is called the dicrotic wave." He, therefore, differs from the opinion of most authorities, who agree that increased dicrotism implies increased freedom of outflow from the arteries, and consequent diminution of arterial pressure.—("London Med. Rec.," June 10, 1874.)

Rupture of the Aortic Valves.—Dr. J. Burney Yeo gives particulars of two cases, and sums up the principal points as regards diagnosis as follows:—

The reasons for believing that the symptoms observed in each were due to an injury sustained by the aortic valves during severe muscular exertion, were—"In the first place, we had the sudden development of a loud cardiac murmur, loud enough to attract the attention of the patients themselves, occurring in persons who had presented no previous indications of cardiac disease. Secondly, we were able to discover that in each case the appearance of the murmur had followed immediately or shortly after severe muscular effort. Thirdly, we could satisfy ourselves by stethoscopic examination that the murmur was produced at the aortic orifice. Fourthly, the murmur was unlike any other with which we are familiar as developed in the course of disease of those valves. The sudden development of a loud sonorous musical note at the aortic orifice can scarcely be accounted for in any other way than by the supposition that a valve, or a portion of a valve, is in a condition to vibrate rapidly and regularly in the blood-current; or, what is perhaps more probable, the support of one of the valves being suddenly removed from the other two, the free edges of the latter are thrown into rapid and regular vibrations by the regurgitant current of blood. Fifthly, we know that injury to the valves of the heart during violent muscular effort is possible; we have cases on record where the chordæ tendinæ and muscoli papillares of the mitral and tricuspid valves have in this manner been torn through, but the aortic valves are those most prone to injuries of this kind.—("Lancet," Dec. 5, 1874.)

Systolic Murmur in the Pulmonary Artery.—Dr. George W. Balfour publishes a case of systolic murmur in the pulmonary artery. Systolic murmurs above the third rib on the left side are found to have two positions of maximum intensity. In the one class the position of greatest intensity is about an inch or more to the left of the left edge of the sternum, situated over the appendix of the left auricle. This murmur really depends upon mitral regurgitation, the murmur being carried upwards with the current of the blood.

In the other class the position of maximum intensity is close to the left edge of the sternum, strictly in the region of the pulmonary artery, in which the murmur undoubtedly originates.

In the case reported a murmur of this kind existed, which is explained by Dr. Balfour as follows:—

“In 1870 Dr. Quincke, of Berlin, pointed out for the first time that when, from any cause, the lungs did not cover the pulmonary artery, then a systolic pulmonary murmur was frequently heard, and that in these cases the murmur was probably produced by the systole of the ventricles. In such a case the heart, which during its contraction has its antero-posterior diameter increased, compresses the pulmonary artery against the parietes of the thorax at each systole, instead of, as in the normal condition, merely forcing aside the overlapping edge of the lung. The blood, thus forced through an abnormally flattened artery, gives rise to a loud systolic bruit. Quincke has proved the truth of this statement by showing that, in certain cases in which—the pulmonary artery was uncovered, respiration defective on the left side, and this systolic pulmonary murmur audible—the murmur ceased to be heard so soon as careful measurement showed that normal respiration was restored, while the diminution of the absolute dulness of the heart proved that the lungs had recovered their normal dimensions. I have already published two very interesting cases of this character, which, so far as I know, are the only English instances published of a murmur thus originating. In the present case it is noteworthy how completely the history of the case, and of the murmur, as well as the post-mortem appearances, bear out Quincke's view. First we have the uncovering of the heart, and especially of the pulmonary artery, as shown during life by the markedly distinct pulsation of the heart, and particularly of the pulmonary artery, and by the increased dulness between the second and third ribs; and which was visible enough on opening the thorax after death, though by that time other causes contributed to account for this uncovering. Then we had two efficient causes contributing to prevent a complete covering of the heart during ordinary inspiration: first the greatly enlarged liver and the pain in the abdomen, and then the string of adhesions along the junction of the ribs with the cartilages on the left side, which, though not tight enough to prevent the covering of the heart to its normal extent on forced inspiration, yet, no doubt, contributed their quota in preventing full covering in the ordinarily restrained respiration of this patient. According to Quincke's view, therefore, sufficient cause was present to account for the systolic pulmonary murmur which was observed, and which, in confirmation of these views, disappeared completely when the normal relation of the heart and lungs was restored by forced inspiration, and vanished for ever whenever the atrophy of the heart was far enough advanced to render the compression of the pulmonary artery ineffective in producing a murmur.”—(“*Med. Times and Gaz.*,” Dec. 12, 1874.)

PATHOLOGY AND MORBID ANATOMY.

Exophthalmic Goitre.—Dr. T. Lauder Brunton publishes two cases of Exophthalmic Goitre.

The first case was one of purely spasmodic exophthalmos, in the intervals of which the symptoms entirely disappeared.

The second case presented, in a typical manner, most of the symptoms of exophthalmic goitre, although neither the enlargement of the thyroid nor the protrusion of the eye-balls is present to any great extent. It was remarkable in being complicated by diabetes, a disease which has been shown by the researches of Cyon, Eckhard, Pavy, and others to be closely associated with the third cervical ganglion, and the nerves passing through it; the very part, indeed, to which the nervous disturbances in exophthalmic goitre have already been attributed. Death took place from œdema of the lungs, coming on rapidly and insidiously.

This case suggests the following considerations:—

Palpitation.—Three causes at once suggest themselves to the mind, and these three are undoubtedly the chief, although there may be, and probably are, others which occasionally come into play. These three are—

1. Paralysis of the vagus.
2. Relaxation of the arterioles.
3. Stimulation of the accelerating nerves of the heart.

The vagus acts as the regulating nerve of the heart, not only by diminishing the number of its pulsations, but by moderating their strength. Paralysis of this nerve, therefore, causes palpitation of the heart, as well as quickness of the pulse. Palpitation, depending on this cause, may be compared to the excessive work done by a steam-engine, from which the governor-balls have been removed. But a steam-engine may also work with excessive, and injurious violence, if the resistance it has to overcome is much diminished, especially if this occur suddenly, and the governor-balls, although present, work imperfectly. The same is the case with the heart, which is very liable to palpitate violently when the arterioles become relaxed from weakness of the vasomotor system, and allow the blood to pour readily through them into the veins, instead of opposing a moderate amount of resistance to its passage.

In anæmic persons, for example, where the vasomotor system is weak and the arteries relaxed, the heart often beats violently, especially when any additional relaxation is produced in the arteries by some slight exertion. Here, no doubt, there is a disproportion between the action of the heart and the work it has to do.

This implies a weakness or disturbance of the nervous arrangement,

which ought to regulate the one to the other. The part of this arrangement which is in fault, however, seems to be the vasomotor system, which allows the vessels to dilate too much, rather than the vagi, whose function is to restrain the heart.

Both kinds of palpitation which I have mentioned, depending as they do on a weak or paralysed condition of the vagi or vasomotor nerves, ought to be relieved by the use of tonics; and in fact we do find that such remedies, and more especially iron, are of the utmost service in the palpitation of anæmia.

But the third cause of palpitation, viz., stimulation of the accelerating nerves of the heart, depends not on weakness, but on overaction of that part of the nervous system, and anything that will increase its power will prove injurious rather than beneficial. Now this is exactly the condition which is found in exophthalmic goitre. Although persons suffering from this disease are not unfrequently anæmic, the administration of iron is not followed by its usual good effects. On the contrary, Trousseau states that it increases the palpitation to such an extent that its employment can rarely be continued. This is exactly what we should expect on the supposition that the palpitation depended on stimulation of the accelerating nerves of the heart, and I am therefore inclined to believe that the palpitation in exophthalmic goitre is due to irritation of these nerves.

Their deep origin has not been exactly determined, but they pass out from the spinal cord along the vertebral artery to the third cervical ganglion, and thence to the heart. They might be excited by an irritation applied either at their origin or during their course; and thus we might expect them to be called into action by changes in the brain, medulla, spinal cord, third cervical ganglion, the branches accompanying the vertebral artery, or those going to the heart.

In order to ascertain where the source of irritation is, we must discover what other nerves appear to be irritated in exophthalmic goitre, and consider what points exist at which application of an irritant might affect all the nerves at once.

Enlargement of the Thyroid Gland.—The great variations which occur in the size of the thyroid gland in exophthalmic goitre, and its remarkable pulsation, which has sometimes caused it to be mistaken for aneurism, have led nearly all observers to ascribe its enlargement, in the first instance at least, to dilatation of its vessels and engorgement of the gland with blood, in a manner similar to that which occurs in erectile tissues. After this has continued some time, increased growth may occur in the glandular elements. This dilatation may depend on direct paralysis of the vasomotor nerves of the glandular vessels, or on inhibition of these nerves by others, in the same way as the vasomotor nerves of the penis cease to act, and allow the ves-

sels to become full when the *nervi erigentes* are irritated. The vasomotor nerves of the thyroid vessels proceed from the second cervical ganglion, but I am not acquainted with any experiment showing whether they pass from the spinal cord to the ganglion through its communicating branches, or pass upwards through the third cervical ganglion. Neither do I know whether these vasomotor nerves may be inhibited, and the vessels dilated, by irritation of the third cervical ganglion, or other parts of the nervous system.

Protrusion of the Eyeballs.—In a case recorded by Laqueur, the protrusion of the eyeballs seems to have been partly due to an increased amount of fat within the orbit, but this may have been only consequent on long-continued congestion. In many cases the protrusion varies at different times. In one of the cases it was only temporary, disappearing at intervals. It is, therefore, usually ascribed, and in all probability correctly, to increased fulness of the blood-vessels, or of the blood-vessels and lymphatics, in the orbit. It may be also due, however, as suggested by Professor Laycock, to contraction of the involuntary muscular fibres stretching across the back of the orbit, which were described by Professor Turner of Edinburgh, some years ago. Whatever be the cause of it, however, Claude Bernard has found that protrusion of the eyeball may be produced by irritating the branches connecting the first and second dorsal ganglia with the spinal cord.

Impaired Movement of the Eyelids.—The loss of consensus between the movement of the eyeballs and the upper eyelids, is ascribed by Von Gräfe to disturbed innervation of the lids, and especially of the levator of the upper eyelid, which is partly supplied by the sympathetic.

Diabetes.—The diabetes in the case under consideration could hardly be due to imperfect destruction of sugar in the body, as the temperature was higher than normal. It must, therefore, be ascribed to increased formation. Increased formation depends, according to Bernard, on dilatation of the hepatic vessels, and a quicker flow of blood through the liver. According to Cyon, the vasomotor nerves of the liver pass from the vasomotor centre in the medulla through the cervical part of the spinal cord, pass out from it, and proceed along the vertebral artery to the third cervical ganglion, thence to the first dorsal, and along the gangliated cord and splanchnics to the liver. Division of this nervous path causes the vessels to dilate, and produces diabetes; but it would appear that irritation of the cervical ganglia, or at least of the first or the third, also causes diabetes, which does not depend on paralysis, but on reflex inhibition of the vascular nerves of the hepatic vessels.

Pathology of Exophthalmic Goitre.—All the symptoms seem to point to an affection of the cervical sympathetic, and postmortem examina-

tion of a case by Peter showed that the lower cervical ganglia, especially the right one, were thicker and redder than normal; that the connective tissue was increased, as well as nuclei and spindle-shaped cells, while there were very few ganglion cells. It seems, therefore, that the third cervical ganglion may be looked on as the seat of the disease. So long as we know so little of the pathology, it is impossible to treat the disease scientifically; but the treatment which seems in practice to have given the best results, is, the use of digitalis and veratria; and Meyer states that he has obtained great benefit from the application of galvanism to the neck. A weak ascending current was passed through both sympathetics, one pole was also laid on the submaxillary region, and the other on the closed eye, or the thyroid gland. The treatment adopted in the second case was of course modified, on account of the diabetes, and alkalies were administered, as experience has shown these to be beneficial in this disease. The benefit probably depends on the action of the alkali on the ferment, by which glycogen is converted into sugar in the body. The action of the ferment is impeded by the alkali, the conversion of glycogen into sugar takes place more slowly than usual, and thus the quantity in the body is diminished.—("St. Bartholomew's Hosp. Rep.," Vol. x.)

Tonsillitis.—Mr. Arthur T. Norton, at a meeting of the Clinical Society of London, read notes of two cases which he considered typical instances of inflammation of the secreting tissues of the tonsil, and lining membrane of the crypts and the channels connected with them, in contradistinction to inflammation of the parenchymatous structure of the gland. These two forms of inflammation of the tonsil, he said, were totally different in cause, in every symptom, in treatment, and results. The diagnostic symptoms were compared as follows:—

Catarrhal.

A mucous inflammation, three or four days' duration. *Causes*: Exposure, draught, damp, cold, etc.

Prostration, and often profuse perspiration. Pulse small and quick. Never runs on to abscess.

Both tonsils affected.

Lacunæ filled with masses of morbid secretion, resembling ulcers.

No œdema around.

Treatment: Tonics and stimulants and astringent gargles.

Parenchymatous.

A fibrous inflammation, two to four weeks' duration. *Causes*: Often neighbouring inflammation, cutting wisdom-teeth, etc.

High fever, with hot dry skin. Pulse strong, hard, as in fibrous inflammation. Commonly forms an abscess.

Rarely both affected.

Often covered with lymph, but no collection of secretion in lacunæ.

Extensive œdema around.

Treatment: Antiphlogistics and depressants, but never gargles, except in the form of warm water.

With regard to the pathology, it was shown, by means of drawings, that the lining membrane of the crypts and channels of healthy tonsils was covered with papillæ of large size, not unlike the villi of the

small intestines. Each papilla was somewhat conical, attached by its apex, covered with a spherical form of epithelium, and contained capillary blood-vessels. In chronic catarrhal tonsillitis, these papillae increased in size twice or threefold: the lining membrane assumed the form of nodular elevations, not unlike grains of sand, and the cavities of both crypts and channels became greatly dilated. Secondly to these conditions, if subacute inflammatory action continued, the parenchymatous tissue increased in thickness by proliferation, and thus permanent hypertrophy of the gland was produced.—[*Brit. Med. Jour.*, Jan. 27, 1874.]

Croup and Diphtheria.—Sir Wm. Jenner, in a lecture on croup, and the diseases which resemble it, raises the question of the identity of croup and diphtheria. He says:—

“It was once supposed that membranous inflammation of the larynx was peculiar to children. It is now known that it is not so. It occurs, not so very unfrequently, in persons of advanced life. Diphtheria is an acute specific disease attended by inflammation of the pharynx, having as its result exudation of lymph. It is a specific inflammation arising from a specific cause. The specific inflammation in diphtheria has a tendency to spread, to spread over the pharynx in all directions, to pass upwards to the nares, downwards to the larynx, and, in rare cases, to the œsophagus and stomach. From the pharynx it may spread down the trachea and into the bronchi. So that in diphtheria we get, not unfrequently, membranous inflammation of the larynx. But membranous inflammation of the larynx, I have told you, is croup. Is there, then, a membranous inflammation of the larynx distinct from the acute specific disease diphtheria? Are there a true croup and a diphtheritic croup? Certainly, if you were to place in the hands of the best pathologist the larynx of a child who had died from membranous inflammation of the larynx, the so-called idiopathic croup, and that of one who had died from a true diphtheritic inflammation of the larynx, he would be unable to distinguish the one from the other. There is no anatomical character by which he could say, ‘This is true croup; this is diphtheritic inflammation of the larynx.’ If, however, the pharynx was also found to be the seat of exudation of lymph, he would say, ‘This is undoubtedly diphtheritic inflammation of the larynx.’ But it is beyond question that true diphtheritic inflammation may be limited to the larynx; that, in exceptional cases, the pharynx escapes the exudation. Seeing, then, that there are no anatomical characters to distinguish the one disease from the other, are there any clinical characters by which the two affections may be separated? It has been supposed that the presence of albumen in the urine would be sufficient, and I formerly laid much weight on this distinction. But later years have satisfied me that in cases which present all the cha-

acters of true croup—which are sporadic, spread to no other person in the house, come on apparently from exposure to cold and damp—that in such cases albumen may be present in the urine. It has again been urged that true croup has no tendency to spread; but this manifestly should no more separate a single case from the diphtheritic croup than should a single case of scarlet fever, because it did not spread, be separated from other cases of scarlet fever. The cause, again—the fact that some cases of croup come on after distinct exposure to cold and wet—cannot be sufficient to separate croup from diphtheritic croup, for it is beyond question that a considerable number of cases of diphtheria do, to all appearance at least, date their origin from exposure to cold and wet. I have seen several solitary cases of true diphtheria thus originating; not spreading, or spreading to other persons in the house, as the case may be. So my opinion has undergone some modification, and I am inclined now to the belief that there is no such disease as idiopathic, simple, membranous inflammation of the larynx. I say, I am inclined to this belief. I am not sure that it is true; but as I formerly thought that the weight of evidence was in favour of their non-identity, I am now inclined, from my further experience, to think that the two diseases are really identical, that the so-called croup is really diphtheria.”—(“Lancet,” Jan. 2 and 16, 1875).

Dr. George Johnson, simultaneously with Sir W. Jenner, makes some comments on “Certain Points Relating to the Etiology, Pathology, and Treatment of Diphtheria.” He says:

“I wish to express emphatically my entire concurrence in the conclusion long since arrived at by Bretonneau, Trousseau, and all the leading French pathologists, that all cases of so-called croup which are associated with the formation of false membranes in the air-passages are essentially diphtheritic; and, on the other hand, that what we in this country call inflammatory croup, or catarrhal laryngitis, never results in the formation of false membrane. It is surprising that practitioners of large experience can have any doubt upon this subject, yet we find even in some of the most recent English text-books that perplexing attempts are made to distinguish between what the authors call ‘true membranous croup’ and diphtheritic croup. The attempt is hopeless and most confusing to the student, for it is certain that membranous croup and laryngeal diphtheria, as we now see them, are one and the same malady.”—(“Lancet,” Jan. 2, 1875.)

An editorial article, commenting on the relations between these two diseases (*croup and diphtheria*), states that the historical argument is a very unreliable one. The comparison is not between a croup of the past and a diphtheria of the present, but between croup and diphtheria as they exist at the present time. The absence of anatomo-

mical distinction between the false membrane in the two diseases compels the observer to look for other differences, and it is upon their etiology and clinical history that the question of this relationship must turn.

That a mechanical or chemical irritant may cause a false membrane in the larynx cannot be doubted, but these cases are very exceptional, and only render more distinct the law from which they differ.

The assertion that a disease cannot be diphtheria because its origin from diphtheritic contagion cannot be traced, is a pure assumption, and is negatived by the fact, that cases are known to have occurred, for which no exciting cause could be traced, showing well-marked diphtheritic symptoms; malignant as well as mild; killing by blood poisoning as well as by suffocation; of a contagious character; and having as sequelæ paralytic phenomena. The origin of the two affections can furnish no uniform ground for specific distinction; we have therefore to fall back on the clinical characters of the maladies. The points chiefly relied upon are the milder course of croup, and the propagation of diphtheria by contagion. The latter, when the degree of contagiousness is low, must always be a test dubious in value and difficult to apply. The poison of diphtheria seems to need almost mechanical contact for its effective transfer.—("Lancet," March 27, 1875.)

Dr. George Johnson writes to suggest that we should agree to use the word Croup as a generic term, to designate the various acute diseases which are attended with laryngeal stridor, and that each specific form of disease should be distinguished by a prefix. The following would be the three chief varieties:—

1. Spasmodic Croup—Syn.: Laryngismus Stridulus.
2. Inflammatory Croup—Syn.: Simple or Catarrhal Laryngitis.
3. Membranous Croup—Syn.: Diphtheritic Croup.

Mr. Stephen Monckton (Maidstone) writes to call attention to the family history of the two diseases. He considers the generic history of the two to be totally distinct, and that a description of *cynanche trachealis* in any of our old authorities differs *toto cœlo* from a description of an outbreak of diphtheria as now current.—("Lancet," Feb. 6, 1875.)

Dr. Moxon writes that he holds the relations between membranous croup and diphtheria to be exactly the same as those of fatal English diarrhœa and Asiatic cholera. He has frequently seen false membranes identical with those of diphtheria, caused by drinking boiling water. He therefore holds that true membranous tracheitis is not always caused by diphtheria. From various considerations, he submits that it is theoretically to be expected that severe cold (like boiling water, and other irritants,) will cause membranous croup; and that observed facts indicate that

such membranous croup is constantly occurring around us, indifferent to the traceable agency of diphtheria.—("Lancet," Feb. 27, 1875.)

Dr. Wilks writes that he considers the identity of these two diseases to be far from proved, as the argument for their identity rests entirely on an anatomical resemblance, which he believes to be an insufficient basis on which to found any such statement as that made by Sir W. Jenner and Dr. G. Johnson. In looking up the literature of the subject, Dr. Wilks did not find that croup was considered to be contagious, nor did he read of any remarkable depression of the heart's action such as is now recognised as often present in true diphtheria. He believes that a membranous inflammation of the air-passages may be caused by injury, by cold as an idiopathic affection, and by the diphtheritic poison, and he thinks that we must hesitate and seek for more evidence before we assent to the doctrine that an idiopathic membranous inflammation of the air-passages has no existence.—("Lancet," March 6, 1875.)

Mr. Stephen Monckton replies to Dr. G. Johnson, and re-states his opinion of the non-specific character of croup, founded on the history of diphtheria. He believes that:—

1. A fair excerpt of the descriptions of croup current from 1820 to 1850, does not supply a delineation in any degree truthful of the causes of modern diphtheria.

2. The image of croup, as it possessed the medical mind from 1820 to 1850, is not at all conformable with the image of diphtheria now prevailing in the profession.

3. At a given crisis, say about 1855, the profession was distinctly conscious of this breach of conformity. It seems, therefore, clear, either that one and the same poison had not been always at work, or that it had largely modified its method of self-presentation.

The dogma "*Omnes Diphtheria ex Diphtheria*," must first be definitely settled before the question can be decided whether membranous croup at the present day is ever other than the result of the diphtheritic poison. The writer believes that we may have diphtheria without a membrane, and a membrane without diphtheria; in proof of this he mentions two cases with paralytic sequelæ (cardiac and ciliary muscles), in which no membrane ever existed; and another case of stomatitis from toothache, with submaxillary abscess, during which a roll of distinctly diphtheritic membrane formed under the tongue without a particle of evidence, except the membrane, that any specific poison was at work.

He believes:—

1. That a mucous or cutaneous surface may sometimes effuse membranous material under non-specific irritation.

2. That some special excitants, telluric or atmospheric, possess the

power and habit of arousing this exudative faculty in special regions, the product being still non-specific.

3. That the false membrane may appear as a feature and consequence of specific blood-poisoning, when it becomes, of course, itself specific and poison-bearing.—("Lancet," March 13, 1875.)

Dr. Moxon, in reply to a letter from Dr. G. Johnson, writes to call attention to the fact that false membranes in the trachea have been produced by:—

1. Boiling water, or rather steam.
2. Fumes of acid.
3. A bean in the trachea.
4. Diphtheria.

And he believes that cold air *may* be as great an irritant as a bean, and may therefore set up tracheitis with or without false membrane. He reiterates his belief that the profession must still continue to recognise fatal true croup as a disease distinguished from diphtheria by its sthenic severity and suddenness, and by the absence of contagion.—("Lancet," March 13, 1875.)

Dr. G. Johnson, replying to Dr. Moxon, argues that the action of such irritants as steam, acid vapours, and a foreign body in the trachea, throws no light on the relation between membranous croup and diphtheria.

Experience shows that the anatomical result of inflammation of the air-passages excited by cold (laryngitis, tracheitis, bronchitis) is a muco-purulent exudation and not a fibrinous membrane. We know that the disease which has prevailed for centuries, and to which in these latter days Bretonneau has given the name diphtheria, is attended with a membranous exudation. As an abraded skin may become the seat of this special membranous formation, so may a mucous membrane abraded by a catarrhal, scarlatinal, or rubeolous inflammation. In other words, diphtheria may occur as a complication of other diseases.—("Lancet," March 20, 1875.)

Dr. R. H. Semple writes "that the inflammatory disease of the larynx and windpipe, often popularly called croup, but not attended by the formation of a false membrane, is not the croup of Home, and Cullen, and Bretonneau."

He considers that the word croup, as popularly employed, comprehends two, perhaps three, very distinct diseases, namely: (1) pseudo-membranous croup, or more correctly, laryngo-tracheal diphtheria; (2) inflammatory croup, or more correctly, acute laryngo-tracheitis, in which there is no false membrane; and (3) spasmodic croup, or laryngismus stridulus.—("Lancet," March 20, 1875.)

Mr. Prangley, in a paper read at the annual meeting of the British Association, 1874, gives details of an epidemic of Diphtheria which occurred in 1868. The number of cases treated was fifty-

six, and the disease assumed all degrees of severity in the different cases. The propagation of the disease to the larynx and trachea constituted the most ominous symptom: of seven cases in which this occurred, four died.—("Brit. Med. Jour.," Jan. 9, 1875.)

Dr. Bennett, at a meeting of the Dublin Pathological Society, related two cases, the one of laryngeal, the other of pharyngeal croup. No anatomical distinction could be made between the membranes in the larynx and trachea, except that the diphtheritic membrane was denser and more lasting. They were both adherent in the larynx, both alike separated from the membrane of the trachea. The croup membrane was confined to the larynx and trachea, not reaching the epiglottis. In the diphtheritic case, the entire upper part of the pharynx and back of the mouth were covered by false membranes. The constitutional symptoms were very severe in the diphtheritic case, the laryngeal condition only being manifest by a croupous condition of voice: there was no respiratory distress, and no cough. The urine was loaded with albumen. Dr. Bennett considers that the use of the term diphtheria is not justifiable, as it implies an anatomical distinction which does not exist.—("Dublin Jour. of Med. Science," Aug. 1874.)

Dr. Wm. Cumming (Edinburgh) sums up his views regarding the two diseases, *croup* and *diphtheria*. He says that many years ago, he saw a large number of cases of membranous croup, and its characters were very pronounced.

1. The type was sthenic.
2. The exciting cause was atmospheric, *i.e.* cold and damp.
3. The treatment was antiphlogistic, viz., tartar-emetic in full doses.
4. It was non-contagious.
5. It was never followed by paralysis.
6. It was limited to a certain age, never occurring after twelve.
7. The membrane was firm, tough, tense, of a light red colour, and strictly limited to the laryngo-tracheal tract. The disease never invaded the pharynx, fauces, or nose.

The characters of diphtheria are totally different, viz. :—

1. The type is asthenic.
2. The exciting cause is septic.
3. The treatment is antiseptic, nourishing, and stimulating.
4. It is markedly contagious.
5. Nervous symptoms are not unfrequent consequences.
6. It has no respect for age.
7. The membrane is ash-grey, friable, in many cases almost pultaceous, and generally soft. It is seldom limited to the laryngo-tracheal tract, but as frequently as not extends to the pharynx, fauces, and nose.—("Brit. Med. Jour.," April 17, 1875.)

Sir J. Rose Cormack writes that there is some reason to believe, although it has not yet been proved, that diphtheria is communicable from man to the lower animals. Professor Bossi describes a case in which a greyhound was affected with a disease of a diphtheritic character communicated by the excrement of a child who died from diphtheria. This case supplies a strong argument in favour of the germ or fungus theory of the disease.—("Lancet," April 24, 1875.)

Dr. Crisp, at a meeting of the Medical Society of London, on April 12th, introduced the subject of croup and diphtheria, and insisted on the non-identity of the two diseases.

In the discussion which followed, Dr. Semple traced the origin of the word "croup" to an old Scotch monosyllable, and stated that three diseases had been confounded under the one term, viz.:—

1. Membranous croup, or laryngo-tracheal diphtheria.
2. Non-membranous croup, or laryngitis stridulosa.
3. Spasmodic croup, or laryngismus stridulus.

Dr. Semple thought the word croup should be rejected entirely. He agreed with the author of the paper as to the non-identity of the two diseases named.—("Lancet," May 1, 1875.)

Diphtheritic Paralysis.—Sir John Rose Cormack, M.D., in a paper on diphtheritic paralysis, read at the meeting of the British Medical Association (1874), began by describing a minutely observed very severe but typical case. The main object of the paper was to elucidate the natural history of the affection, which he looked upon as the true guide to the prognosis and treatment of each case—so far as a guide exists irrespective of the individual peculiarities of the patient, and the character of the disease in respect of the district, season, and race in which it occurs, and the constitution of the prevailing epidemic, should the disease be prevailing as an epidemic. The most skilful physician cannot cure pneumonia, typhoid fever, or diphtheria; but he can guide to recovery many cases of these diseases which would be lost by the routine administrator of remedies. Medicines are sometimes exceedingly useful in diphtheritic paralysis, as well as in the earlier stages of diphtheria; but in each case, and in each epidemic, we find that the efficacy of particular remedies varies with the variation in the therapeutic opportunities. The author regarded a generous, easily assimilated diet in all stages and forms of diphtheria as generally the basis of the treatment; ferruginous medicines were nearly always useful, but, like all other medicinal agents, they had their times for being given and for being withheld. In diphtheritic paralysis, the persistent use of local stimulants and small blistering bands (according to a method described) constituted, perhaps, the most valuable treatment. Electricity had its opportunities, and was sometimes most useful. Change of air, the douche, and short courses of nux vomica were agencies which fre-

quently gave a start to a lagging recovery. Still, we must never lose sight of the fact that the paralysis has a definite career to run; and that if the patient were only to eat and drink well, and digest his aliment, he would, at the end of a longer or shorter time, be restored to health—provided always, of course, that no insuperable obstacle to recovery exist, such as implication of the muscles of respiration in the paralysis. In discussing the pathology of the affection, the author referred to recent German and Italian physicians who had described necropsies in cases of diphtheritic paralysis, in which they found a structural change in the grey and white matter of the medulla, which some of them have termed disseminated myelitis. The author looked on these appearances in the cases referred to as secondary. Diphtheritic paralysis, though it has its own peculiarities and specialties, is similar in kind to the paralysis which we meet with as a sequel of typhoid fever, relapsing fever, scarlatina, and dysentery. In all it is peripheric. Its invariable starting point is the *velum pendulum palati*; and that is a distinctive peculiarity between it and the paralysis following typhoid fever, relapsing fever, scarlatina, and dysentery.—(“*Brit. Med. Jour.*,” Aug. 29, 1874.)

Laryngeal Phthisis.—Dr. Marcet contributes a paper on the history of laryngeal phthisis. From an analysis of seventy cases, the following conclusions were deduced:—

1. More men than women are affected, in the proportion of two to one.
2. Most cases are met with between the ages of 20 and 30.
3. In eight cases no visible organic change existed in the larynx.
4. In thirty-one cases the epiglottis was affected.
5. Positive ulceration existed in only thirteen cases.
6. Dysphagia was present in fourteen cases.
7. Aphonia, or some alteration of voice, existed in fifty-nine.

Dr. C. J. B. Williams, in commenting on this paper, observed, that he quite coincided with Dr. Marcet in the conclusion that the disease is rather a modification of ordinary phthisis than a special disease in itself. The laryngeal complication is usually a serious aggravation of phthisis, and hastens the fatal termination. The cough is very harassing; the loss of voice is distressing; and painful deglutition, often from ulceration of the larynx, rather than of the epiglottis, exhausting.

Dr. Drysdale believed the prognosis in laryngeal phthisis to be fatal, except when the patient could go to a warmer climate. Under these circumstances, he had known a few cases where life had been prolonged for years; but, as a general rule, laryngeal phthisis leads rapidly to death.

Dr. Thin called attention to the fact that phthisis never occurs amongst the native white population of Salt Lake City, which stands

on a plateau four thousand feet above the level of the sea. Amongst the converts to Mormonism who came from Europe and Eastern America, were sometimes persons who had been affected with symptoms of phthisis in the early stage; in these, although the symptoms might be aggravated during the journey, arrest and cure of the disease almost invariably took place after their arrival.—("Royal Med. and Chir. Soc.," Feb. 23, 1875. "Brit. Med. Jour.," Feb. 27, 1875.)

Dr. Sawyer, in a clinical lecture on this disease, maintains, in opposition to Virchow, that the local lesions in the larynx are mainly, if not solely, *inflammatory in their nature*, and wholly unconnected with truly tubercular changes in the parts.

He divides the laryngeal changes into four stages:—

1. The stage of anæmia.
2. That of tumefaction.
3. That of ulceration.
4. That in which necrosis or caries of the cartilages may arise.

The anæmic condition of the larynx, the patient not being anæmic generally, combined with vocal feebleness, should induce the practitioner to make a careful search for some other evidence of phthisis. Later on the mucous membrane becomes congested, and the appearances are those of simple chronic laryngitis. The tumefaction, which is characteristic of the phthisical disease, follows, the aryteno-epiglottidean folds becoming transformed into tense pear-shaped tumours, and the epiglottis becoming thick and more or less globular in shape.—("Lancet," Jan. 30, 1875.)

Laryngeal Neuralgia.—Dr. Clinton Wagner describes a condition of laryngeal neuralgia which is occasionally met with, independently of any other morbid condition. The pain, which is at times intense and agonising, is felt along the thyroid cartilage and anterior part of the neck, the nerves implicated being the superior and inferior laryngeal, especially the former. There is also, at times, a feeling of oppression or choking; the voice is weakened, and the pain increased, when the least exertion of the voice is made. It occurs in ill nourished persons, and it should be classed with the superficial neuralgias which Anstie describes as "excited by anæmia, or mal-nutrition." Such cases are generally cured by large doses of iron and quinine, together with insufflations of acid tannic and morphia into the larynx.—("Med. Press and Circ.," Jan. 20, 1875.)

Laryngeal Neuroses.—Dr. Sawyer writes on some neuroses of the larynx. He calls particular attention to bi-lateral paralysis of the adductors of the vocal cords, generally known as functional or hysterical aphonia, and he points out the fact that in these cases anæsthesia of the epiglottis may often be noticed. This blunted sensibility of the mucous membrane of the throat extends far beyond the epiglottis, and involves more especially the pharynx and palate.—("Brit. Med. Jour.," Oct. 31, 1874.)

Pathology of the Pneumogastric Nerve.—Dr. S. O. Habershon contributes some clinical facts connected with the pathology of the pneumogastric nerve. Just as morbid conditions of the stomach are due to the state of the nervous supply, so with the thoracic viscera we find nervous palpitation, and hurried breathing, and loud cough produced by alteration in the nervous supply, and the pneumogastric nerve constitutes as important a supply of nervous power to the lungs and heart as to the stomach. With the larynx, loss of voice and irritable cough may in like manner be due to an altered condition of the pneumogastric nerve.

The alternating character of the functional diseases of the pneumogastric is of great interest. We see an irregularity of type and rapidity of recovery which contrast remarkably with the severity of the symptoms. Spasmodic asthma of the most distressing kind suddenly gives place to disturbance of the stomach, this to cerebral symptoms, and these to severe neuralgia. Violent vomiting and marked gastric irritation are followed by loud cough or loss of voice, indicating that an affection of one set of nerves has given place to change in another set of branches. Every branch of the nerve has a definite purpose, and the throat, the larynx, the lungs and the heart, the stomach, the liver and other abdominal viscera, are thus brought into the closest union. During health the hidden connections are united in harmonious working, but in disease the jarring of disturbed action spreads its sympathy to all the parts thus linked together.

1. Disease at the cerebral origin of the nerve may induce symptoms of irritation in any other part supplied by the same nerve.

2. Irritation in any set of peripheral branches may produce disturbance in any other part to which the nerve is distributed, or in the centre itself.

3. Alternation of irritation may be produced, at first one set of nerves, then another, becoming implicated.—("Guy's Hosp. Rep.," 1875.)

The Lymphatic System of the Lungs.—Dr. Klein, in a paper read before the Royal Society (January 29, 1874), gives the results of his researches on the normal and pathological anatomy of the lymphatic system of the lungs. He finds that in the lungs of the guinea-pig there exist three systems of lymphatic vessels.

1. Sub-plural lymphatics.—These form a net-work of anastomosing lymphatic vessels, occupying the meshes of the muscular membrane of the lung beneath the proper pleural membrane. The relation between the cells of the membrana propria of the pleura pulmonum and the endothelium of the surface, is similar to that which has been described by him as existing in other serous membranes. The cells of the propria throwing out processes which project between the endothelial elements of the free surface, thus forming pseudostomata.

2. Peri-vascular lymphatics.—The branched cells of the alveolar septa, from which the capillaries of this system of lymphatics originate, have an important relation to the epithelium of the alveoli; for they send a process between the epithelial cells into the cavities of the alveoli, thus forming pseudo-stomata in the walls of the alveoli. The lymphatic capillaries of this system lead into vessels which accompany the branches of the pulmonary artery and vein: they run either in the adventitia of these vessels in twos or threes, anastomosing with each other, or the blood-vessel is entirely or partly invaginated in a lymphatic vessel.

3. Peri-bronchial lymphatics.—These are chiefly distributed in the adventitia of the bronchi, and they anastomose freely with the peri-vascular lymphatics. The vessels of this system take up capillaries which originate in the mucous membrane of the bronchi, and penetrate through the muscular coat: these capillary branches originate in the usual way, *i.e.* their walls are continuous with the branched cells of the mucosa, which cells in turn penetrate, as a nucleated reticulum, between the epithelial cells of the bronchus, and project on its free surface.

The pathological changes accompanying miliary tuberculosis are described in detail by Dr. Klein; and he considers that miliary tuberculosis in man resembles only to a limited extent those changes which occur in the process of artificial tuberculosis in guinea-pigs. In the latter, the first structural change is characterised by the appearance of peri-vascular lymphangial nodules, whereas the changes of the inter-alveolar tissue and the alveolar epithelium, form only a secondary process. In man, on the other hand, the first change is perceptible in the alveoli and the inter-alveolar septa, and these changes are followed by the appearance of peri-vascular cords. It is, therefore, probable that in artificial tuberculosis of the lung in the guinea-pig the parts first attacked are the small branches of the pulmonary artery, or pulmonary vein; whereas, in the miliary tuberculosis of man, the capillary blood-vessels of the alveoli seem to be the tissues from which the action of the morbid agent starts.—(“Report of the Medical Officer of the Privy Council;” New Series, No. 3, and also “Proc. Royal Soc.,” Vol. xxii., No. 149.)

Nature of Consumption.—A series of leading articles in the Medical Times and Gazette on the “Nature of Consumption,” which will be found in the first volume of 1875, gives a concise but complete account of the history of the subject. After referring to the views of Bayle, Laennec, Louis, Addison, and others, the writer gives the history of more modern views as to the nature of tubercle. Commencing with the experiments of Villemin, and the modification of Villemin’s conclusions by the subsequent investigations of Dr. Andrew Clark and Lebert, the views of Wilson, Fox, Burdon, Sanderson, and others,

are explained; and the pathology of phthisis is then considered more particularly with regard to the recent researches on the production of tubercle. The whole forms a resumé of what is known on the subject.

Pathology of Pulmonary Consumption.—Dr. J. Henry Green, in his "Notes on the Pathology of Pulmonary Phthisis," sums up the more important conclusions derived from the study of miliary tuberculosis as follows:—

1. The lesions in miliary tuberculosis are inflammatory growths, resulting from the dissemination of infective substances from some primary inflammatory product.

2. They usually occur as disseminated miliary nodules, although they occasionally consist of more diffused tracts of consolidation.

3. Histologically, the pulmonary lesions present certain differences. In some cases they consist almost exclusively of alveoli stuffed with epithelial elements, and a small amount of fibrinous exudation; in others, this intra-alveolar accumulation is associated with the development of a small-celled adenoid tissue in the alveolar walls; whilst, in a third class of cases, the nodule is constituted of a tissue consisting of the adenoid structure and branched "giant" cells, which tissue is often seen to be undergoing fibroid changes in its more external portions, and retrograde metamorphosis in its centre.

4. These differences in the constitution of the lesions are mainly owing to differences in their age, and in the intensity of the tuberculous process.

5. Provided the intensity of the tuberculous process be not sufficient to cause the rapid disintegration of the nodules, the amount of fibroid changes in them is greater in proportion to their age.

6. The greater the intensity of the tuberculous process, the more prominent is the part which epithelial proliferation and exudation play in the production of the nodules, and the more rapidly do they undergo disintegration. The less its intensity, the more abundant is the development of the small-celled adenoid tissue in the alveolar walls, and the greater is the tendency of the nodule to undergo a fibroid change.

7. The retrograde metamorphosis of the nodules is mainly due to the obstruction to the circulation caused by the pressure exercised upon the pulmonary capillaries by the intra-alveolar accumulations, and also by the small-celled growth in the alveolar walls.

The definition of phthisis he gives as follows:—

"All those alterations in the lung which are characterised by progressive consolidation, and by the subsequent softening and disintegration of the consolidated tissue."

The changes met with in the lungs in pulmonary phthisis are similar histologically to those of pulmonary tuberculosis. They differ, how-

ever, in two particulars. In the first place, whereas the lesions of pulmonary tuberculosis, owing to the infectious character of the disease, tend to be limited to small circumscribed areas, those of phthisis more commonly involve wider and more diffused tracts of tissue. Secondly, the element of time imposes certain peculiarities upon the lesions in a large proportion of the cases of phthisis. Inasmuch as the disease runs a more protracted course than tuberculosis, the lesions not only become more densely fibroid, but they are also frequently the seats of secondary changes.

The morbid change in the lungs in the various forms of pulmonary phthisis are mainly of four kinds :—

1. An accumulation of large epithelial cells within the pulmonary alveoli. Sometimes the "giant-cells" are present.

2. The presence within the alveoli of a fibrinous exudation and of leucocytes.

3. A thickening of the alveolar walls by a small-celled lymphoid tissue, together with, in most cases, the growth of a similar tissue around the minute bronchioles.

4. An increase in the interlobular connective tissue.

These four kinds of morbid histological change are very commonly associated, although in very different degrees.

The bronchi are invariably more or less involved in pulmonary phthisis. The changes are mainly of two kinds :—

- a. A superficial catarrhal process.

- b. An inflammatory process, implicating the deeper structures of the mucous membrane and the peri-bronchial tissue.

After considering the nature of the morbid processes which give rise to the various histological changes met with in the lungs in phthisis, Dr. Green sums up as follows :—

"I have thus endeavoured to show, in the first place, that the several structural alterations met with in the lungs in phthisis are the results of morbid processes which must be regarded as being inflammatory in their nature; and, secondly, that these alterations are by no means peculiar to phthisis, but are precisely similar to those met with in other forms of pulmonary inflammation. In describing the morbid processes as inflammatory, I merely mean to imply that they owe their origin to some kind of injurious irritation. It has already been stated that the several kinds of change are usually associated, although in such different degrees that, whilst in some cases of phthisis the pulmonary consolidation is due almost entirely to one kind of change, in others the predominant lesion is entirely different. Admitting, therefore, the inflammatory nature of the lesions, it remains to consider the causes of these differences in the mode of their association."

In those cases of phthisis in which the consolidation of the lung is

the most rapidly induced, the inflammatory process being of considerable intensity, exudation and migration will occupy a prominent place. In cases of somewhat less intensity, epithelial proliferation will take a larger share in the production of the consolidation, and there will probably be commencing changes in the alveolar walls; whilst in those cases in which the inflammatory process is the least intense and most chronic, the growth in the alveolar walls and interlobular tissue will constitute the predominant lesions.

In studying the causes of this caseation and disintegration of phthisical consolidation, Dr. Green thinks it is evident that these are mainly of four kinds:—

1. Certain histological peculiarities in the consolidated tissue, which, by interfering with the vascular supply, prevent absorption, and tend to produce caseation and necrosis.

2. The character of the cell-forms which accumulate within the alveoli. These being so frequently of an epithelial type, undergo complete fatty metamorphosis less readily than do the exudation products of a more acute pneumonic process, and consequently they are less capable of being readily absorbed.

3. That tendency to stagnation of the blood-stream which is the invariable result of every intense inflammation.

4. An inherent weakness of the lung (usually inherited), which not only renders it especially susceptible to injury, but, when injured, renders it abnormally incapable of recovering itself from the inflammatory process which has been induced.

In many cases of phthisis the pulmonary disintegration is probably due to the combined influence of all these causes; and in most Dr. Green is inclined to believe that the last-named cause constitutes a very important factor in the production of this result.

In studying the etiology of pulmonary phthisis, it will be necessary to consider, in the first place, that inherent weakness of the lungs which exists so frequently in this disease; and to see how far this weakness explains the marked susceptibility of the organs to injury and those peculiarities which have been seen to exist in the histological characters of the textural alterations and in the subsequent changes which take place in the consolidated tissue; secondly, to examine into the several methods by which injuries may be inflicted on the lung in such a way as to set up an inflammatory process; and, lastly, to point out in what way the occurrence and progress of the disease is influenced by the general health of the individual.

Firstly, with regard to the inherent weakness of the lungs. That some abnormal condition of the lungs which is quite independent of any material change, or at all events of anything either chemical or anatomical which we are able to recognise, is present in a large proportion of the cases of phthisis, will be very generally ad-

mitted. This weakness is in most cases an inherited one, and it is usually spoken of as a "constitutional tendency" or "predisposition." Although it is undoubtedly in most cases inherited, it would appear to be probable that a weakness precisely similar in its results may sometimes be primarily induced by previous attacks of pulmonary inflammation; that a lung which is constitutionally strong may thus be rendered weak, although the inflammatory process has left behind it no recognisable structural change. Whether this hypothesis be true or not, there can be no doubt that any weakness of a lung which may exist as the result of hereditary taint will be increased by the occurrence in the organ of an inflammatory process. Lastly, it must be borne in mind that a weakness of the lungs may exist in common with a weakness of the tissues generally. A low standard of health in the individual produces a general weakness, in which the lungs participate, quite irrespectively of any *special* predisposition of these organs. This will be again alluded to when speaking of the general health as influencing the occurrence and progress of phthisis.

The most important result of this inherent weakness of the lungs is that it renders them abnormally susceptible to the various kinds of injurious irritation, and they are consequently especially liable to become the seats of inflammatory processes. The frequency with which people who inherit this weakness of the lungs suffer from attacks of bronchial or pulmonary inflammation of varying degrees of intensity, is a matter of everyday clinical experience. Such people are usually spoken of as "delicate;" they are very susceptible to cold, and it is their respiratory organs that suffer, and ultimately they often become phthisical.

The third and last method by which injuries may be inflicted on the lung is by means of *infection*. By this Dr. Green means that irritation of small areas of the pulmonary tissue by means of minute particles derived from some pre-existing inflammatory product, such as occurs in acute tuberculosis. In this general infective disease the source of infection may be situated in any part of the body; but when infection becomes an auxiliary in the production of phthisical consolidation of the lungs, the infective particles are usually derived from some pre-existing phthisical disease. In other words, the infective process usually supervenes upon pre-existing phthisis. Any mass of phthisical consolidation may, under certain circumstances, constitute an infective focus, and so give rise to disseminated inflammatory processes in adjacent or distant tissues, the area of infection depending upon whether the infective materials are distributed by means of the blood-vessels or of the lymphatics. The infection which is so common in phthisis is that localised process in which the lymphatic vessels and serous canals are the carriers of the infective agents, so that the secondary

inflammatory processes are more or less confined to the neighbourhood of the infective focus. The resulting disseminated lesions are in all respects precisely similar histologically to those which have been already described as occurring in pulmonary tuberculosis. The part which infection plays in the production of phthisis varies very considerably in different cases. It is probably not common for phthisical consolidation to exist without its acting, at some time or other, more or less injuriously upon the pulmonary tissues. In many cases it causes merely a small amount of secondary consolidation in its immediate vicinity; but in others the infection extends over a much wider area, and may involve the whole of that lung in which the primary disease is situated. It is in this way that infection is sometimes met with as an acute process terminating chronic phthisical disease.

In answer to the question, What bearing such pathological considerations have upon the prevention and treatment of the disease? Dr. Green replies that the older doctrines which were held respecting the specificity of tubercle and phthisis undoubtedly exercised an unfavourable influence upon treatment. During recent years there has been a gradually increasing tendency to regard phthisis as an inflammatory affection, and there has consequently been a corresponding tendency to attempt by treatment to prevent the occurrence and control the influence of pulmonary inflammation. Continued pathological research points to the necessity of moving still further in this direction. We do not perhaps even yet sufficiently recognise the fact that the development of phthisis is determined, and the progress of the disease influenced, by the ordinary causes of inflammation; and the results of pathological investigation indicate the advisability of directing our treatment still more closely with the object of preventing and rapidly controlling all inflammatory processes in the lungs.—("Med. Times and Gaz.," Nov. 28 and Dec. 12, 1874; Jan 2, 16, and 30, and Feb. 13, 1875.)

Dr. William Marcet publishes a paper on *Consumption, a form of Septicæmia*.—The maintenance of life and health is stated to be a perpetual conflict between the phenomena of nutrition and those of physical decomposition or fermentation and putrefaction; and the changes which occur in the body in disease may frequently be looked upon as results of simple physical decomposition.

In consumption, at first sight, no physical metamorphosis appears to take place in the body before death, but such is not in reality the case. The expectoration may, shortly before death, emit an obvious faint smell of incipient putrefaction. The chemical composition of the tissues undergoes a change of a purely physical character. The chlorine and soda in the muscular tissue, being greatly increased beyond their normal proportions in health, the muscles are also found to be in a moist and soft condition, such as is assumed by flesh under-

going incipient decomposition. These facts seem to indicate that as the vital force becomes diminished, and the power of nutrition of tissues lessened, the tendency to some physical change peculiar to organic matter deprived of life gradually obtains the upper hand.

The analogy of dissection-wounds, and the fact that septicæmia seems to be due to the absorption into the system of putrescent discharges of various kinds, are commented on; and in reference to the main point of the paper, viz., the state of the body in consumption, it is premised that a tubercular or pneumonic deposit in one or both lungs must be the starting point of phthisis. So long as persons with such deposit continue healthy, the abnormal material present undergoes nutrition; but it may be presumed that trifling circumstances would seriously impair the vitality of such growths. The presence of decomposing organic matter in the air breathed would be one of these circumstances; this decomposing material, acting on the abnormal growths as it would upon non-living organic matter, arrests the nutrition of the morbid product, sets up decomposition, and gives rise to septicæmia. Septic particles floating in the air would be harmless in perfect health, because the molecular changes connected with the healthy nutrition of pulmonary tissues are sufficiently active to resist this power of decomposition. The sequel of this state of poisoning is often rapid or galloping consumption, and its features strikingly resemble those of septicæmia.

In cases where the septic action of decomposing pneumonic deposits is less virulent, we have the symptoms of the more chronic form of consumption, viz., high temperature, quick pulse, and steadily progressing debility and emaciation, associated with the physical signs of consolidation and breaking down of lung-tissue.

The object of treatment must be to arrest the septic power of the poison which forms within the lungs, together with the physical changes resulting from its action. Charcoal respirators to prevent the introduction of septic material may be of service, as also antiseptic drugs, but the one thing which certainly acts very positively towards obtaining the desired effect is removal to a high locality some 300 or 500 feet higher than that in which the patient may happen to be. Dr. Marcet has found such means successful in arresting most intractable hæmoptysis, bringing severe pneumonia to a successful issue, cutting short in a very few days a state of long-continued fever, and in many instances staying the progress of phthisis.—("St. George's Hosp. Rep.," Vol. vii., 1875.)

Tubercles in various Organs.—Dr. Joseph Coats, at a meeting of the Glasgow Pathological and Clinical Society, showed the lungs, liver, and spleen, from a case of general tuberculosis. He called attention to the large size of the tubercular nodules in all these organs, but especially in the lungs and liver. In the lungs they formed pale

tumours, generally about the size of split-peas, but sometimes aggregated so as to resemble cancerous masses. In the liver, tubercles are usually so small as to be invisible to the naked eye; but in this case they were about half the size of those found in the lungs, and so of very considerable dimensions. The case was considered of interest in illustrating the pathology of tubercle. There were here distinct tumours, many of them of considerable size, and their resemblance to masses of cancer indicated the analogy of tubercle, and especially of general tuberculosis, with cancer, and more especially with cancer which has become generalised.—(“Brit. Med. Jour.,” May 22, 1875.)

Hæmorrhagic Infarctus, Chronic Pneumonia, and Phthisis.—The following extracts from a “Manual of Pathological Anatomy,” by Drs. Handfield Jones, and Edward H. Sieveking; 2nd edition, edited by Dr. Joseph Frank Payne, (Churchill, 1875,) represent the latest views of pathologists on these subjects.

Hæmorrhagic Infarctus, or Pulmonary Apoplexy.—The most important point to be noticed with respect to these hæmorrhagic masses is that the whole arterial and capillary vascular system of the part is distended with stagnant and coagulated blood. The capillaries are in the condition of thrombosis, and the branch of the pulmonary artery distributed to the part is always found also blocked with a clot. This clot usually fills the vessel completely, ends abruptly towards the heart, but may be traced in the other direction into all the smaller branches. The surface is usually white and granular, like that of a clot which has sojourned long in a vessel, and the centre is sometimes crumbling, decolorised, or even softened.

There is little doubt that the condition of the hæmorrhagic block is connected with the blocking up of the arterial branch. Opinions differ as to the immediate cause of the blocking of the artery. Some regard it as a thrombosis, others as an embolism.

Arrest of circulation in a part of the lung, from whatever cause, may produce hæmorrhagic infarction. Practically the condition is hardly met with, except in cases of heart disease, when the pulmonary circulation is impeded. Formerly hæmorrhage was explained as a simple consequence of excessive pressure; but this does not account for the occurrence of isolated blocks, for their peculiar shape, or for the obstruction of the vessels. Heart disease then appears to act as a cause predisposing to coagulation of blood in the vessels.

The chief feature in *Chronic Pneumonia* is the hypertrophy of the inter-alveolar tissues. The walls of the air-cells are seen greatly thickened, and containing pigment-granules, while the air-cells are filled with large irregular masses resembling mucous corpuscles, but often of abnormal size, as if several were fused together, and also containing pigment. The condition may resemble acute lobar

pneumonia in having the air-cells filled with fibrinous exudation, and the only peculiarity observable in the exudation is the preponderance of tough, opaque, granular fibrine and the small number of cells. In other cases we have found a remarkably luxuriant development of epithelial structures, which have quite filled the alveoli. Induration and contraction, however, in the end depend on the formation of a fibroid (now called lymphadenoid tissue) and gradual obliteration or replacement of the pulmonary tissue by it.

The nodules which have been called *Tubercles in the Lung* are of the following classes:—

1. Grey miliary tubercles.—Such as are seen (for instance) in the serous membranes. They most commonly occur in large numbers, spread through the whole or great part of one or both lungs. The most typical examples are found in acute miliary tuberculosis.
2. Peri-bronchial granulations.—These are small hard masses formed round the smaller bronchi.
3. Broncho-pneumonia granulations.—These are the product of catarrhal broncho-pneumonia.
4. Small syphilitic nodules.
5. Small fibroid granulations.

The *Forms of Phthisis* recognised are:—1. Catarrhal phthisis, or caseous pneumonia. 2. Mixed phthisis—inflammatory and tubercular. 3. Tubercular phthisis. 4. Fibroid phthisis.

To these must be added—5. Acute general tuberculosis affecting the lung.

The following are the chief forms of *syphilitic disease* met with in the lungs:—1. The true gumma-syphiloma.—Rarely met with, and generally in the congenital form of the disease. 2. A peculiar form of pneumonia, the “white pneumonia,” chiefly seen in congenital syphilis. 3. A species of indurative lobular pneumonia.—This is the commonest syphilitic lesion of the lung in adults. It commences with minute granulations resembling broncho-pneumonic tubercle, which become confluent into larger nodules up to the size of a walnut, or still larger. The microscopical appearances are those of interstitial proliferation, with inflammatory changes in the air-cells, ultimately resulting in the formation of rather dense fibro-nucleated tissue.

Hæmorrhagic Infarction of the Lungs.—Dr. Gerald Yeo writes on the pathogeny of hæmorrhagic infarction of the lungs. He considers the name “infarctus” as synonymous with “apoplexy” when applied to the lungs.

The chief anatomical peculiarities are:—*a.* Sharp demarcation from the surrounding tissue. *β.* Plurality of the centres of engorgement. *γ.* Their scattered distribution in the lungs. *δ.* Their regular conical shape. *ε.* The dense thrombi in the vessels.

The embolic theory of the cause of the infarction of the lung which accompanies the hæmorrhage in heart disease necessitates that we should find a constant and ready source of origin for the emboli.

For this, in the majority of cases of dilatation, we have not far to go, as in the right auricular appendix, or among the trabeculæ of the right ventricle, there is generally an abundant supply of small coagula, formed when the movement of the blood is most retarded. The sequence of events will be as follows :—

1. Prolonged impediment to the pulmonary circulation, frequently caused by valvular disease of the left side of heart.
2. A certain amount of injury to the pulmonary vessels caused by the constant obstacle to the flow of blood.
3. Dilatation and hypertrophy of the right heart, which always follows persistent impediment to the pulmonary circulation.
4. Coagulation of the blood, which commonly occurs on the surface of the ventricle or in the auricular appendix.
5. Detachment of portion of such fibrinous clot.
6. Embolism of a branch of the pulmonary artery.
7. Hæmorrhagic infarction.

Dr. Yeo draws the following conclusions from his paper:—

a. That the commonest cause of hæmoptysis in cardiac disease is pulmonary infarction produced by embolism.

b. That the origin of the embolus may usually be traced to the cavity of the right side of the heart, where fibrinous clots are frequently formed during life.

c. That the alteration in the capacity and strength of the right side of the heart is commonly the immediate cause of the embolism.

d. That disease of the smaller branches of the pulmonary artery is commonly associated with the changes in the right heart, and is an important agent in determining the amount of hæmorrhage.

e. That bleeding from the bronchial mucous membrane cannot produce, or even simulate, true hæmorrhagic infarction.

f. That valvular disease of the left side of the heart is a very common starting point of all these pathological changes, but that such disease is by no means an invariable concomitant of pulmonary apoplexy.—("Dublin Jour. Med. Science," March, 1875.)

Spasmodic Asthma.—Dr. C. Theodore Williams, in a paper read before the Brighton and Sussex Medico Chirurgical Society, on the pathology and treatment of *spasmodic asthma*, details the evidence we have of the existence of ample muscular machinery for the occurrence of spasm. The experiments of Dr. C. J. B. Williams, showing that the bronchial tubes contract under stimulation, have been recently confirmed and illustrated by Dr. Klein, who demonstrates the existence beneath the pulmonary pleura of a meshwork of bundles of unstriated muscle in guinea-pigs, rats, and rabbits.

This muscular machinery is regulated by a nervous supply, which Dr. Theodore Williams describes as follows:—

The nerve-supply to the lungs and bronchial tubes is very abundant, being derived from the two pneumogastrics, the spinal nerves, and the

third and fourth thoracic ganglia of the sympathetic. The pneumogastrics give off, within the thorax, anterior and posterior pulmonary branches. The anterior, passing in front of each lung, receive branches from the sympathetic ganglia, and form a small plexus. The anterior pulmonary, from which nerves are distributed to the bronchi, chiefly in the anterior portions of the lung, posterior pulmonary branches, with branches from the left recurrent laryngeal, and from the third and fourth thoracic ganglia, form the posterior pulmonary plexus. The branches of this very complicated plexus are thickly distributed to the bronchi, forming a network which accompanies these to their finest divisions; and, in connection with these, Remak discovered small ganglia. Here, then, are ample links to connect the bronchial muscle with the outer world, and to account for the various phenomena of a fit of spasmodic asthma. When the cause is a local one, acting directly on the bronchi, as, for instance, dirt or pollen, or, again, climatic influence, the spasm may be induced by reflex action through small ganglia connected with the pulmonary plexuses.

Wintrich's experiment of the effect of the cold air on the bronchus of the lung separated from the body gives strong probability to the above proposition, as there is reason to believe that cold air and other irritants can produce a spasm in the living body, as they succeeded in doing so in the dead one. This causation would suffice to explain the phenomena when only a slight wheeze or piping sound is heard, and the thoracic muscles are not called into play. If the local effect be more severe, then the pneumogastrics become largely involved; and, the irritation reaching the medulla and spinal cord, a motor effect takes place through the upper cervical, the phrenic, and the dorsal nerves; and then the diaphragm, the scaleni, and the external intercostals, are thrown into contraction. Thus can asthma arising from local causes be explained. How, then, from general causes which act indirectly through the lungs, as asthma from indigestion and emotion? Where emotion, or fright, or laughter, starts the fit, it must be considered that the irritation is centric, and causes a motor effect on the pulmonary plexus through the pneumogastrics. Where, again, indigestion excites it, the sensation passes through the gastric branches of the pneumogastric to the pulmonary plexus, and is thence reflected through its motor filaments. Lastly, where a fit is induced by a certain state of blood, as from gout or skin disease, we may regard the blood itself as causing the local irritation.—(“Brit. Med. Jour.,” June 13, 1874.)

Gangrene of the Lung and Pulmonary Embolism.—Dr. Hayden, at a meeting of the Pathological Society of Dublin, exhibited a specimen of gangrene of the lung, due to embolism of the pulmonary artery.

The patient from whom the specimen was taken was 33 years of age; she had been confined on Oct. 29th. Three days afterwards chest symptoms commenced, following a rigor, which took place after she had imprudently gone out. Death occurred on Dec. 24th. A large gangrenous cavity existed in the lower lobe of the right lung, and a plug was found occupying a tertiary branch of the right pulmonary artery running towards the gangrenous centre.—(“Dublin Jour. of Med. Science,” May, 1875.)

Pleuritic Effusion.—Dr. J. R. Wardell publishes some remarks on pleuritic effusion.

The author cites a number of cases to show that large quantities of effused fluid can be absorbed, and a full recovery eventuate. He also gives illustrations of the fact, abundantly shown during the last few years, that the drawing off of the fluid can, in very many instances, be had recourse to, not only without any of the risks which formerly were entertained, but with the best effects. In the great majority of instances the disease is amenable to treatment, and in many cases patients now make a full recovery, who would, if they had been subjected to the inert means formerly adopted, unquestionably have perished.

The distinguishing features between hydrothorax, which generally affects both sides simultaneously, and pleuritic effusion, generally unilateral, are pointed out. Double effusion, as the sequel of pleurisy, is quite exceptional; but instances of double pleurisy do sometimes occur, and are generally of a secondary kind, the consequences of adynamic, malignant, or exanthematous fevers. When such examples are met with, there is a debased condition of the circulating fluids, the exudative product is aplastic, and unlike those exudations which characterise the fibrogenic materials that prevail in the sthenic types.

One pathological change, of great significance in pleuritic effusion, which has not been so prominently considered as the fact demands, is the formation of coagula in the pulmonary artery. It is a change which greatly tends to the carnification of the pulmonary substance, and also—by clots finding their way into the cardiac cavities—is sometimes followed by sudden death. The blood-stasis in the pulmonary circulation caused by lymphic obstruction is doubtless one cause of that albuminous expectoration after thoracentesis, of which French pathologists have written so much.

The secretion of pus in the pleura, empyema, is rarely primary, except in extremely high inflammation, as the result of injury, and as occurring in children. One of the most notable peculiarities of purulent secretion, either in the chest or the abdomen, is the enormous quantity which may be secreted in these serous sacs. A short time is sufficient for even quarts to be thrown out.

In some instances the effusion consists almost entirely of blood. This is not unfrequently the result of malignant disease; but when the pleura is in no way involved in any carcinomatous affection, there may be sanguineous serosity. Sanguineous colouration is not very unusual in tubercular pleurisy. Hæmorrhage within the pleura may result from laceration of small vessels in the adventitious and pyogenic deposits, after some extra exertion, or from coughing. The lung, also, by its expansion, may tear the semi-organised structures by which it has been bound.

The fluid, if in notable quantity, cannot remain long and harmlessly in the pleural cavity; indeed, the longer it remains, the less amenable is it to treatment. The liquid itself becomes debased, and acquires deleterious qualities, after its removal from the circulation; and various pathological changes of necessity eventuate. It is important to remember that pus may be removed by absorption alone, even when the quantity is considerable.

Empyemic effusion is not unfrequently followed by tubercular phthisis. Tubercular granules are seen, not only in the pulmonary substance when the lung is not absolutely compressed or carnified, but they undergo a metamorphosis in pleuritic coagula and in pseudo-membranous formations, in their varied conditions of organisation. In pyopneumo-thorax, when the secretion is particularly prone to decomposition, and when deleterious and irritating matters are transferred into the circulation, a dyscrasia supervenes which favours any diathetic tendency to tuberculosis. In several instances, Dr. Wardell has known empyema to be followed by phthisis.

One of the most notable, and sometimes one of the most desirable, results is *contraction*. In children the deformity resulting may be very considerable; but in adults the parietes are more rigid, and deformity is therefore less easily effected: there is, therefore, in adults a lessened chance of the pleural surfaces being so brought into contact as to obliterate the vacuum and arrest the powers of secretion. The membrane contracts with concentric effort, and union would readily be accomplished if it were not for bony rigidity.

As regards the treatment of pleuritic effusion, much discrimination is required in the selection of those patients in whom absorption may be trusted to for its removal. If the fluid be not large in quantity, if the line of dulness do not ascend higher than one-third of the thoracic wall, if the product is believed to be serum, and if there be not quick pulse, high temperature, with other phenomena of symptomatic fever—if there be no marked disturbance of the respiratory functions—and if the patient appear to be a person of good and unbroken constitution, their absorption may be attempted with much probability of success. The conditions which render paracentesis necessary may be concisely summarised, as follows:—

1. In all cases in which inspection and the physical signs give evidence of a large quantity of fluid; when there are symptoms of compression of the lung, and there is manifest cardiac displacement.

2. When there are urgent dyspnoea, an irregular pulse, and threatening of orthopnoea.

3. When the affected side is smooth and rounded, and the intercostal spaces are effaced or protrude; when measurement proves bulging; when the dulness in the chest is complete, or demarcated, and absolute; when there is abolition of tactile fremitus; when there are bronchophonic voice, tubular breathing, and absence of breath-sound; when the patient can only lie on one side, or in a diagonal position; and when there is the Hippocratic sign of succussion.

4. When the exploratory needle proves the fluid to be purulent.

5. If the heart is pushed from its normal position, and the apex beat substernal, or beyond the right sternal edge, or if it is thrust towards the left hypochondrium, or if it is lost; when it becomes presumptive that the organ has been driven inwards and backwards; and when, on the one side, the liver depends abnormally into the abdomen; and when, on the other side, the relaxed and down-pressed diaphragm so displaces the spleen that its free edge can be felt.

6. When half the thoracic cavity is filled, and a month or so shows no proof of absorption, the longer the delay the less are the chances of expansion.

7. In those exceptional cases of double pleurisy, when both cavities become half filled with effusion, and dyspnoea shows the lung-space to be dangerously encroached upon.

8. In pulmonary phthisis, when the accumulation of serous or sero-purulent secretion causes distress, and when the other lung assumes the symptoms of bronchitis or pneumonia, the operation should at once be performed.

9. In mechanical hydrothorax, it may be had recourse to, though with no intention of cure, but merely with a view of prolonging life for a time, and to aid the action of medicinal remedies.

10. In children, whose chest walls are thin, and in whom the white tissues are more developed, and confer greater resiliency to the thoracic parietes, and whenever there are certain evidences of fluid, it should, without delay, be evacuated.

11. In hydro-pneumothorax, it may be generally with safety and benefit employed.

12. Pointing externally should never be waited for.

13. Under certain circumstances, repeated tapplings are required.

Some remarks follow on the occurrence of albuminous expectoration following thoracentesis. It comes on from ten minutes to an hour

after the operation, and continues for several hours, or an entire day. Perforation by the trochar, spontaneous perforation, reabsorption after the operation, and pulmonary congestion giving rise to transudation through the alveolar walls, have been assigned as causes of the phenomenon. The last-named mode is held to be the most explanatory. Dr. George Johnson attributes the symptom to absolute blood-stasis in the minute pulmonary vessels, especially in the pulmonary veins. Coagulation in the large pulmonary veins is a condition which takes place in a lung compressed by pleuritic effusion, more frequently than used to be supposed. It is evident that the irritant properties of the sudden ingress of atmospheric air is the most explicable cause of the congestion of the pulmonary capillaries, and the sequential event of the transudation of serosity.—("Brit. Med. Jour.," 1874.)

Notes and Observations on Diseases of the Heart, and of the Lungs in connexion therewith.—By Thomas Shapter, M.D. (Churchill, 1874.)

The first chapter of this work contains an account of the circulation of the blood and *the Action of the Heart*. It is maintained that the heart proper is ventricular, and ventricular only, and that the circulation through the heart mainly depends upon: 1, its ventricular exhaustion or suction power; and, 2, on its ventricular contraction, whereby it is induced with the function of propulsion. The auricle, on the other hand, is rather to be considered as an appendage proper to the venous system, and not as appertaining or necessary to the ventricular heart, and that therefore auricular contraction is not an active agent in the movement of the blood. The auricles fulfil two evident conditions: the one, in connection with the venæ cavæ and pulmonary veins, of being the ready vessels of supply whence the ventricles or heart proper receive that blood which, on their expansion, they require; the other, that of being elastic expanding vessels and representing those enlargements, which invariably accompany the valves of the veins, by which the tension induced by the contracting ventricles and the sudden closing of the valves, consequent on the incoming stream of blood, is compensated for.

In chapter ii. the author considers *the Sounds* of the heart to be due to the sudden interposition of the valves in the moving column of blood, whereby a concussion is produced. The obstructed flow is the hammer, the valves and the surrounding structures are the media through which the vibrations resulting from the concussion are communicated. He very much doubts whether the two conditions supposed by Dr. Leared, and necessary to his views of a fluid in motion and a fluid in a state of rest, ever exist at the auriculo-ventricular openings, and assuredly they never do at the pulmonary and aortic openings.

Chapter vii. deals with errors in *the Impulse of the Heart*. The most important structural affection with which diminished impulse is asso-

ciated are characterised by a condition of the heart whereby the dulness on percussion in the præcordial region is increased. The physical conditions associated with weak impulse may be—1. Dilatation; 2. Dilatation with hypertrophy; 3. Fatty deposits; 4. Fatty degeneration; 5. Deposits in the pericardium; 6. Deposits in the pleura.

The general symptoms indicating or dependent on weak heart are those of physical weakness and easily-induced breathlessness. Observation has not confirmed Mr. Canton's view, that the *arcus senilis* is concomitant with fatty metamorphosis of the heart. Dr. Shapter has seen many cases of fatty degeneration without *arcus*; while in many, especially amongst the aged, in which it has been strongly marked, there has obviously not been the least tendency to a fatty metamorphosis. Those in whom a feeble impulse occurs as a functional disorder are, irrespective of the sex, usually of the leucophlegmatic temperament.

Speaking of hypertrophic conditions of the heart, we find it stated that there can be no doubt that the existence of both hypertrophies and dilatations is not necessarily, or even commonly, dependent on the *Pre-existence of Valvular Disease*; inasmuch as these affections commence and progress to a fatal conclusion, in a large number of instances, without any evidence of valvular disease; while, on the other hand, obstructive valvular disease is often developed, and becomes confirmed during the progress of hypertrophy and dilatation. Observation leads to the inference that they do not stand in the intimate relation of cause and effect, but are to be considered as separately due to the same, or to different, inflammatory or constitutional causes. Considering the import and the very serious consequences of a diseased state of the walls of the heart, the author cannot bring himself to consider the occurrence of hypertrophy or of dilatation as beneficial in valvular disease, but he rather regards valvular disease as less dangerous when occurring separately than when the evidences of the presence of hypertrophy or of dilatation co-exist—that in fact, these latter affections are more injurious, and more fatal in their tendencies, than are the several valvular diseases themselves.

Chapter viii. contains an account of the errors in the rhythmical action of the heart, and of the results in *Syncope* of an indefinite prolongation of the pause. It is inferred that failure in the power of the heart is not the specific cause, but only a feature of syncope, that in fact syncope is really a deliquium animi, and not primarily an affection of the heart. There may be interference with the vagus, but more probably the seat of the affection is in the sympathetic ganglionic system.

Chapter x. describes *Pain of the Heart*.—When uncomplicated with obvious organic disease pain is met with mainly in those of a nervous

temperament, in the gouty and dyspeptic. These pains are seated, primarily, in the pneumogastric or cardiac nerves; and, secondarily, in the nerves of the brachial plexus and cerebro-spinal nerves supplying the front of the thorax.

In angina pectoris, is pain a necessary element of the disease? May there not be fatal spasms without pain? The author believes that cases of painless or dumb angina do sometimes occur.

Lectures on Pathological Anatomy.—By Samuel Wilks, M.D., etc., and Walter Moxon, M.D., etc. (Churchill, 1875.) We extract from this work the more important and recent observations concerning the pathology of lung and heart affections.

As a result of pericarditis, the serous surfaces may become wholly or partially adherent, or the membrane merely thickened in particular spots. Thus, several years after an attack of pericarditis, which has been cured, an adhesion may be found attaching the front or other part of the heart to the sac. Not uncommonly the apex is thus adherent, and sometimes a long loose cord is seen attached to it, like a band which had broken. More frequently than this, the heart is found universally adherent to its serous covering by means of a most delicate areolar substance, and then no evil appears to result from it. Thus it was found three times in one week on one occasion, and on another four times in one week, always innocent of any share in the fatal illness. It would, therefore, appear that its occurrence is quite unconnected with symptoms, or any impaired action of the organ. It might easily be supposed that, if nature has made the heart to move freely in a serous cavity, the obliteration of this would of necessity impair its motions; but the same might be thought of the lungs. These organs, in like manner, are intended to be free in the chest, and yet adhesions appear to do no harm, and are found, more or less, in nearly all cases we examine. There may be, indeed, some amount of impairment of action in either case; but this is not appreciable, nor are any ill effects recognised. Indeed, when we reflect that no vacuum arises in the pericardium during the action of the heart, so that the sac must follow the heart's movements, the delicate adhesions would only seem to help that result.

When such adhesions were first recognised (at the time of the discovery of auscultation), it was thought that an enlargement of the heart resulted there from, and no doubt the two conditions may often be found combined; but in many of these cases it will be seen that valvular disease is also present; in others the enlargement might be considered to be due to other causes, since a hypertrophy often takes place without any pericardial affection. Drs. Wilks and Moxon think that simple

pericardial adhesion produces no appreciable untoward consequences.

But there is another class of cases, the result of grave pericardial inflammations, in which the adhesion of the pericardium is by a thick vascular fibrous layer, and the muscular substance is torn by the attempt to separate the pericardium from the heart. The heart is then always found dilated and hypertrophied, and there may or may not be valvular disease co-existent, for the disease is always the result of a severe and often of a general carditis. To understand how such cases come about, the change under the acutely inflamed pericardium, already mentioned, must be remembered. It is natural to expect that such a damage of muscle must lead to loss of power and temporary dilatation of the cavities, which dilatation, creating a greater mass of blood to be moved, furnishes that resistance which the heart is always so ready to respond to by hypertrophy, and in this way a grave pericarditis leads at last to the dilated hypertrophical condition we are speaking of.

When the inflammatory lymph reaches a subpuriform state through intensity, and yet the case recovers, and life lasts long after, the pericardium undergoes a very surprising change in the form of an earthy degeneration or petrification.

White Patches.—Milky Spots.—The question has long been under discussion, whether the white patches so often seen on the surface of the heart are inflammatory or not; some looking upon them as mere thickening of the membrane, and others as the result of inflammation. If by inflammation we mean that there has been a pericarditis and lymph effused, which has subsequently organised, there is no proof that such has ever occurred. The obscurity of the term inflammation has probably had much to do with the difficulty in determining the point, for no doubt most pathologists are assured that such patches are of slow formation. If this be granted, it is another question how far the term chronic inflammation can be applied to such a process. Occasionally, as a result of pericarditis, some of the lymph may remain and organise, producing white patches on various parts of the heart, such as already described; but these are mostly irregular, and at base or apex, while the white patches now under consideration are always on parts of the organ which come in contact with the sternum, the fifth and sixth ribs, or otherwise suffer most friction. Thus on the front aspect, in the middle of the right ventricle, a circumscribed white smooth patch may often be seen, also on the apex of the left ventricle in front. The same also on the posterior aspect, especially on the projecting coronary vessels, and sometimes on the right auricle. Hence we believe them to be due to attrition, and formed, therefore, in the same manner as callosities in

other parts, such as corns on the toes, which are not, if of slow formation, generally called inflammatory. It is much in favour of this view that they are generally found on large strong hearts, especially the hypertrophied hearts of granular kidney cases, though here, as to the question of their inflammatory nature, two notes must be made:—First, that the authors have twice met with a small layer of recent lymph limited to such patches; and second, that it is just in these cases of granular kidney and large heart that we are so apt to meet that acute pericarditis associated therewith, and which, it might be suggested, may be due to friction on the covering patches.

The varieties of enlargement of the heart are classified as follows:—

1. Enlargement of the right side in emphysema.
2. Enlargement of the right and of the left auricle, from contraction of the mitral orifice.
3. Enlargement from aortic disease.
4. Simple enlargement without valvular disease, frequently associated with Bright's disease.
5. Dilated hypertrophy of the right heart and pulmonary arteries, as an idiopathic disease.

The subject of fibroid disease of the heart has recently attracted attention; we therefore quote the following passage:—

Sub-Inflammatory or Fibroid Degenerations.—It has been said that the results of inflammation are seen in streaks of fibrous structure running into the muscular substance. Extreme examples of this kind are always combined with indications of previous endocarditis, and pericarditis, and are allied to the changes seen in the liver, lungs, etc., where the investing capsule is the subject of chronic inflammation, which involves the adjacent texture, and thus the pericardium being thickened and adherent, the neighbouring muscular walls become involved in the fibrous change. This is shown by a section of the wall of the ventricle, in certain specimens, where fibrous bands and streaks may be seen pervading the tissue in all directions. When these fibrous bands are seen along with obvious signs of old pericarditis or endocarditis, they are referred to the extension of these processes into the tissue beneath; but sometimes we meet with patches of fibrous substance in the tissue of the heart, when there is no evidence of former pericarditis or of endocarditis, other than the sharing of the inner surface in the change at the affected spots. The interior of the ventricle is marked with patches of a pearly whiteness, owing to a fibrous change of the endocardium, and the muscular trabeculae beneath, when cut asunder, are seen to have a mere trace of muscular fibre in their midst, some of the smaller being wholly fibrous.

Such examples are not very uncommon, and their pathology is very

interesting. Is it inflammatory? You sometimes find excess of new corpuscles in the growing edge of the patches, and hence might infer that they are inflammatory. In one case we met with such tissue in the heart, along with endarteritis, which had led to closing up of several of the principal arteries of the body. This would infer a general inflammation of the lining of the vascular system. But often they histologically appear only as fibrous tissue, and the existence of former inflammation is an inference unsupported by history of rheumatism, etc., which in Drs. Wilks' and Moxon's cases has generally not been present, though this experience differs from that of some other observers.

Such patches are often clearly traceable to syphilis; we have before spoken of the liability of the muscles to syphilitic inflammation. The heart and diaphragm are among the muscles most liable to this change.

Besides these circumscribed patches of fibroid degeneration, probably syphilitic or otherwise inflammatory, you find in the interior of greatly dilated hearts that a fibroid change invades the *columna carnea*, especially in the left ventricles. These may be changed to fibrous tissue. Such a change is probably due to a stretching of them, drawing the middle part of them away from their vascular supply, which must enter at the ends. The change you will perceive is always begun in the middle of the muscular columns, at the apices of the *musculi papillares*, that is, at the points farthest from the entry of these vessels.

From the chapter on the *Lungs* we extract the following on the histology of the process which takes place in inflammation of the lungs. Before microscopic times pneumonia was regarded as an exudation of lymph into a supposed parenchyma of the lung, but when the organic nature of an inflammatory product was discovered, the theory of Schwann was applied, and the ordinary explanation of a primary hyperæmia, followed by an exudation of serum called cytoblastema, in which cells sprang up, was adopted. This theory of a spontaneous generation of cell-life continued until Virchow's dogma of "*omnis cellula e cellula*" took place, and the idea of proliferation of the endothelium of the alveoli of the lung was substituted for the older one; in this theory the hyperæmia must be regarded as secondary, and necessary to the cell-growth. More recently the views of Cohnheim have been enforced by many pathologists, that inflammatory cells are none other than the white cells of the blood which have migrated through stigmata in the capillaries, and these views may be made applicable to the case of pneumonia. It does, however, appear to be a fact beyond contradiction that in pneumonia the endothelial cells grow and propagate, but this by no means is opposed to the later theory. If the air-vesicle of a case of so-called croupous

pneumonia be examined, it will be found to be filled with a firm and fibrillated substance, in which are imbedded cells resembling the white cells of the blood, and others larger and of less regular shape, which may well have been formed by the proliferation of the endothelium; at the same time, owing to the engorgement of the vessels, some red corpuscles have escaped into the tissue, and some of them breaking up have stained the secretion red; this is observed in the rusty viscid sputum. At the later stages of pneumonia we may also observe the fibrous walls of the alveoli containing an exudation of cells, and these may in all likelihood have had their origin in the fibres themselves.

As regards the microscopic appearances of the morbid products in *Phthisis*, an examination of the grey translucent hard tubercle shows it to have been formed in the walls of the alveoli; it is composed of a number of cells contained in a fibrous matrix or reticulum. The general resemblance of this to a lymphatic gland structure, has caused the name adenoid, or lymphoid, to be given to these tubercles by some pathologists; and, even more than this, since it has been said that the smaller bronchi are rich in lymphatics, and that these tubercles grow at their extremities; that the tubercles actually take their origin in the lymphatics themselves. The cells composing the miliary tubercles are small, and about the size of lymph-corpuscles; but besides these, there are sometimes found larger cells, styled *giant-cells*, which some have thought to be characteristic of the formation.

The softer material, which is called yellow tubercle, is seen filling the air-cells. It has been formed within the alveoli and termination of the bronchi, from the endothelium lining these parts, and is composed of a mass of irregularly shaped cells, consisting of epithelium and lymph-corpuscles. These have become opaque and fatty, and block up the air vesicles.

The products found in the phthisical lung, which all regard as inflammatory, may be of various kinds; sometimes resembling what is seen in the hepatization of recent pneumonia; sometimes resembling the firmer albuminous material of a slower inflammation; and sometimes the denser fibrous tissue which conglomerates all the structures of the lung.

Syphilitic Disease of the Lungs is thus summed up:—At the present time we must admit that there are true syphilitic gummata to be met with in the lungs; also that there are more chronic formations removeable by remedies, which are probably of a fibro-plastic character, and which, if not removed, develop into true fibroid change, and produce the phthisical lung; thirdly, there may be a more general and diffused hepatization of the lung due to the syphilitic influence, and this is a form occasionally met with in children.

In a chapter on the *Association of Diseases*, we find some general remarks on the different forms of phthisis. The main and constant characters of all forms of phthisis are those which mark the anatomical appearance of the lung. They are :—

1. The disease is destructive of the tissue at the parts affected.
2. It attacks the lung from above downwards.
3. The diseased parts put on a more or less rounded form, and are firm to the touch, so that when small they feel like knots or grains in the texture, and can be distinguished by one's finger, without the aid of sight, from any other disease of the lung.

These general features are so constant, that we regard them as sufficient to show that phthisis in all its varieties is essentially one and the same disease.

The characters that vary are those that more concern the symptoms and termination of the disease. Thus you will find that whilst the phthisis spreads from above downwards, and destroys the part involved, and produces hardish knots in the tissue, features common to all phthisis, there will be additional appearances according to the stage of the disease and the mode of death. The modes or causes of death in phthisis may be considered as follows :—

1. Hæmorrhage, acute pleurisy, pneumothorax, acute pneumonia, miliary tubercle, repeated tuberculo-pneumonic destruction of the lung with pyrexia; any of these may bring the patient down unexpectedly, so that, instead of the extreme emaciation that we are accustomed to look for in phthisis, the body may be comparatively well nourished; this is especially the case with hæmorrhage, pneumothorax, or general tuberculosis, so that if the subject is well nourished, either of these accidents may be anticipated.

2. If the case has passed lingeringly on through a longer period of illness, and the emaciation is greater, embolism of the arteries of the healthier part of the lung is a frequent cause of dissolution, or diarrhœa from extreme intestinal ulceration (we have twice met with perforation from tuberculous ulcer of the ileum, and once with fatal constriction from contraction of such an ulcer; but these accidents are rare). In such more prolonged cases destruction of the lung is more complete, and there is greater pigmentation and induration of the organ.

3. If the disease has been protracted for years, then other appearances are presented, and fresh consequences declare themselves. The disordered part of the lung is contracted by the cicatricial action, which was indeed necessary to the prolongation of life; and it may be that the remainder of the lung is expanded to fill the thoracic cavity, constituting pulmonary emphysema, and inducing bronchitis, dilatation of the right heart, and perhaps dropsy, and completely transforming the characters of the malady, as well as its mode of termina-

tion; so that if met with at first in its latter stages, the complaint may not be recognised as phthisis at all, especially as the tubercles, which individually never last long, are not now visible, and may be with difficulty traced in most parts of the organ. Some special writers on the subject of phthisis call this a distinct kind, and, without showing any adequate reason why, refuse to recognise that the protracted course of such a case infers extensive cicatricial action, the product of which is necessarily fibrous or "fibroid." In these protracted or "fibroid" cases, the lardaceous change of the viscera is common, and therewith you get albuminuria, and the case may thus put on the characters and mode of termination of Bright's disease.

Thus, excluding cancer, the lung in phthisis will offer a compendium of all the pathological accidents to which that organ is liable, and differences thus arise enough to confuse those who seek for variety, while meantime the leading features of the disease are identical in all cases, as we before have said.

Left Endocarditis.—Dr. Joseph Coats, at a meeting of the Glasgow Pathological and Clinical Society, showed a heart with chronic endocarditis localised on the wall of the left ventricle. The endocardium was thickened over an area of about one and a-half square inches. The muscular trabeculæ were in this region converted into fibrous trabeculæ, and the ventricle, though generally dilated, was specially so in this region. Between and behind these altered trabeculæ there were five or six globular vegetations, which peeped out from the recesses. One of them was as large as a hazel nut, and had a pale granular section, with just a trace of softening in the centre.—("Brit. Med. Jour.," May 22, 1875.)

Fatty Degeneration of the Heart.—Mr. John Martin, in a paper read before the Cork Medico-Chirurgical Society, gives some interesting observations on "The Nature of the Tissue-Change known as the Fatty Degeneration of the Heart."

He considers that the term fatty degeneration should be restricted to the deposition of real adipose tissue upon the surface of the heart, and around its muscular fascicles, while soapy degeneration would be the more appropriate if not very elegant term by which to designate the necrobiosis, which is at present called fatty degeneration of the heart. He assumes an identity between the pathological processes which result in the fatty and calcareous degenerations, the most prominent conditions accompanying the fatty change being atheroma and calcification of the larger arteries. The chemical peculiarity of the heart's muscle, viz., that it contains a larger amount of inosite than the muscles of the body generally, and the chemical relations of this substance especially as regards the calcic salts, suggest the idea that the inosite of the heart-muscle undergoes first the lactic and then the butyric fermentation, and that these acids enter into combination

with lime, the lactates and butyrates of lime being deposited in the tissues. The carbonate of lime being in excess in the system, comes into contact with the substance inosite in the muscular walls of the heart, and of the vessels, and in the same tissue with syntonin, which, acting as a ferment, effects decomposition of the muscle-sugar. Gradually the normal cell-element of the fibre disappears, and is replaced by minute particles of a substance having the nature of—not a fat, but—a soap, that is, of a compound between a fatty acid and a metallic oxide. Both atheroma and the muscular degeneration are considered to be the results of the combination of a fatty acid derived from the metamorphosis of inosite with lime.

Mr. Martin deduces from his theory that the indications for treatment are twofold. First, reduction of the supply of lime ingested; and second, the elimination of lime as quickly as possible. The drugs on which he would rely are the nitric and hydrochloric acids, in combination with iron.—("Dublin Jour. of Med. Science," Feb., 1875.)

Fatty Heart.—Dr. Henry Kennedy, at a meeting of the Dublin Pathological Society, exhibited a specimen of purely fatty degeneration of the heart. It occurred in a woman eighty years of age, who was admitted to the hospital for injury of the hip. The Cheyne-Stokes' modification of breathing was noticeable; her pulse was sixty-six, exceedingly compressible, and large; the slightest touch of the finger was sufficient to obliterate the pulse. At the post-mortem examination it was found that the fatty degeneration had gone on to a great extent at the same time that the valves were nearly free from disease.—("Dublin Journ. of Med. Science," May, 1875.)

Fibroid of the Heart.—Dr. Greenfield, at a meeting of the Pathological Society of London, Feb. 16th, 1875, exhibited a specimen of fibroid disease of the heart, from a man aged forty-three, who died suddenly a few hours after admission to hospital. The symptoms were those of advanced heart-disease, with albuminuria and dropsy. The chief interest of the case lay in a roughened patch on the posterior wall of the left ventricle, to which was attached a honeycomb clot, and the kidneys were studded with embolic patches consequent on this clot.—("Med. Times," March 13, 1875.)

Fibroid of the Cardiac Muscle.—Dr. Hayden, at a meeting of the Dublin Pathological Society, exhibited three hearts, showing fibroid transformation of the muscular tissue of the walls and of the papillary muscles, in three successive stages of the disease. The characteristic feature, microscopically, was considerable hypertrophy of the connective tissue.

The first specimen afforded an example of what Sir Wm. Jenner describes as partial fibroid transformation from persistent congestive irritation of its walls. The others might be supposed to result from

inflammation, commencing in the sub-epicardial or sub-endocardial tissue, travelling into the heart, causing hypertrophy in the first instance, and then thinning and rigidity of the walls; a condition which would lead, when localised, to aneurism of the heart.—(*"Dublin Journ. of Med. Science,"* Sept., 1874.)

Tumour of the Heart.—Dr. Moxon and Mr. Wagstaffe, reporting on a specimen of tumour of the heart, shown by Dr. Burney Yeo, at a meeting of the Pathological Society of London, state that they found an irregular growth occupying the cavity of the left ventricle, and having extended from the musculus papillaris into the wall of the heart. Its limits could not be determined with precision, as it was evidently an infiltrating growth. On section, it was white, firm, exuding no juice, and showing no signs of degeneration. It showed—

a. Hypertrophy of connective tissue between the healthy muscular fibres;

b. Subsequent accumulation of embryonic cell growth in the same position;

c. Ultimate compression and absorption of the muscular fibres by the increased development of small cells imbedded in a matrix, at first structureless, but afterwards fibrillated or fibrous.

The reporters consider the growth to be an infiltrating syphiloma, of especial interest on account of its large size and the absence of the ordinary degenerative changes.—(*"Lancet,"* March 20, 1875.)

Tricuspid Murmur.—Dr. Nixon, at a meeting of the Dublin Pathological Society, exhibited a heart illustrative of tricuspid murmur. It was taken from a woman, aged fifty-five, admitted into the hospital for capillary bronchitis and emphysema. The right heart was dilated. A systolic bellows-murmur was afterwards developed, heard most distinctly at the junction of the left fifth costal cartilage with the sternum; it was faintly audible at the ensiform cartilage, but was lost towards the mitral area. Double pulsation in the distended external jugular veins was also observed. After death the heart was found to be square-shaped; it weighed fifteen ounces. The right ventricle and auricle were dilated, and the walls of the ventricle hypertrophied; the tricuspid orifice admitted the tips of four fingers and the thumb.

Dr. Nixon believes that tricuspid murmurs of dynamic mechanism are most frequently produced in the advanced stages of bronchitis, emphysema, and dilated right heart. The murmur is invariably accompanied by a double pulsation in the external jugulars, the first wave in the vessel being due to the arrested descent of the blood during the time of the auricular contraction; the second, to the regurgitating wave sent into the auricle, and up along the superior cava during the contraction of the ventricle.

It is difficult to say why tricuspid murmurs exist in some cases, and

are absent in other cases of an apparently similar nature. Possibly the explanation may be found in the condition of the right ventricle, as to whether it has undergone hypertrophy or atrophy. In the one case its more effective and vigorous contraction may generate a regurgitant murmur, which an attenuated and dilated ventricle is incapable of producing.—("Dublin Jour. of Med. Science," July, 1874.)

Aneurism of the Heart.—Dr. Reginald Southey, at a meeting of the Pathological Society of London, showed a very rare specimen of aneurism of the heart. The patient had been under his care two years ago. He was a soldier, who had served in India, and had had ague and fever there. Soon after his return, whilst carrying a heavy weight, he felt something "give way" in his chest; and this was followed by a sense of tightness across the chest, great dyspnoea and cough. When admitted in October, 1872, there was extreme pallor and debility; orthopnoea and great dyspnoea on movement. The heart was found to be enlarged, with diffused apex beat, and a thrill felt there; a double murmur was audible over the lower part of the cardiac area and towards the apex. He became much better, and was able to work after his discharge. On re-admission in October last, he was extremely ill, and presented the symptoms of left pleurisy; he was unable to lie down; there was anasarca of the legs, and also ascites. There was a systolic murmur over the heart's apex, which was displaced to the right. Four pints and a half of fluid, at first clear, then blood-stained, were removed from the left pleura by paracentesis, but he rapidly sank. At the autopsy, the left side of the diaphragm was pushed downwards, and the left pleura contained four pints of fluid, with some blood-clots. An aneurismal sac, the size of a large cocoa-nut, was found in the wall of the heart, opening by an orifice, the size of a crowquill, into the left ventricle near the apex. The sac was globular, partly divided by a fibrinous septum, its wall somewhat thin below, but thicker towards its upper part, and externally it was covered by the adherent pericardium. The cavity contained a quantity of blood-clot and disintegrated blood. The left ventricle was not hypertrophied, but somewhat dilated; the aortic and mitral valves were healthy; the aorta not atheromatous. Dr. Southey pointed out that the diagnosis in all these cases is uncertain, and that the largest aneurisms often have small orifices.

Dr. Wickham Legg thought this aneurism unusually large, the largest on record being a case of Friedrich's, in which it equalled the heart in size. He referred also to a monograph by Pelvet on the subject.

Dr. Green thought the case very important, from its bearing on the etiology of the disease. He questioned whether the term "aneurism" was strictly applicable, and inquired what relation pericardial adhesion bore to the sac in such cases.

Dr. Southey, in reply, remarked that when the aneurism is large, the pericardium becomes adherent and forms the outer wall of the sac; hence rupture occurs less frequently than in smaller aneurisms.— (“Lancet,” Dec. 19, 1874.)

Aneurism of the Heart.—Dr. Barlow, at a meeting of the Pathological Society of London, on March 2, 1875, exhibited a specimen of aneurism of the heart. The patient was forty-two years of age, a plasterer, who had suffered from angina for three years, and who had syphilis five years before. The heart was found enlarged, the left ventricle hypertrophied and dilated, the valves incompetent, and at the base of the heart, immediately beneath the auricular appendix, was a sac, the size of a small orange. This sac communicated with the left sinus of Valsalva by a rounded orifice, due to ulceration.— (“Lancet,” March 6, 1875.)

Aneurism of the Mitral Valve.—Dr. Wickham Legg, at a meeting of the Pathological Society of London, exhibited two specimens of aneurism of the mitral valve; one in an early stage, and the other more advanced. In both the bulging was on the auricular surface; in the one on the large, and in the other on the small flap. The change was due to endocardial ulceration with consequent weakening. The first specimen was small; it occurred in a man of fifty-four, who was in the hospital only three days. Nothing could be ascertained about the cardiac sounds. The second, a large specimen, was taken from the body of a youth of twenty-two, who died in the fourth attack of acute rheumatism. At first a double aortic murmur was heard, then a mitral regurgitant murmur, and thereafter a presystolic murmur at the apex with thrill. The second sound at the base afterwards cleared up; and so, with an obstructive aortic murmur and a double mitral murmur, the boy died. The character of the murmurs, however, changed from time to time. Before death there also occurred right hemiplegia, from plugging of the left middle cerebral artery, and plugging of the brachial artery.— (“Med. Times and Gaz.,” Jan. 16, 1875.)

Aneurism of the Thoracic Aorta.—Dr. Douglas Powell, at a meeting of the Pathological Society of London, March 2nd, showed two specimens of aneurism of thoracic aorta. The first was from a man, who dated his symptoms from six years, and who had been under treatment five years, in whom a prominent tumour occupied the front of the chest; and at the post mortem examination a second tumour was found to project from this posteriorly. There had been general compression of the oesophagus, causing much dysphagia. Death occurred without rupture, rigorous treatment by rest and starvation having been adhered to.

The second was from a man, aged thirty, who had been in good health till six weeks before his admission to hospital. The patient

presented symptoms of general progressive heart disease. Death was sudden. An aneurism was found immediately above the aortic valves, and the sac presented several secondary pouches. In the pulmonary artery was found an oval aperture, leading into the aortic aneurism. Dr. Powell remarked, that in most of the recorded cases of aortic aneurism opening into the pulmonary artery, the disease had simulated progressive heart disease, with dropsy.—("Med. Times and Gaz.," March 27, 1875.)

Aneurism of the Intra-pericardial Part of the Aorta.—Mr. Birkett reports a case of aneurism of the intra-pericardial part of the aorta, causing embolism of the femoral artery, with gangrene of the foot and leg. At the autopsy the pericardium contained 32 ounces of bloody fluid, a mixture of blood and serum. The parietal layer of pericardium was roughened by lymph. The visceral layer was covered by a thin but coherent lamina of lymph, which was separated in places from the heart's surface by a layer of coagulated blood. Another layer of lymph was found beneath the layer of coagulum. In the right side of the aorta, half an inch to an inch above the valves, was an opening, the size of a florin, leading into an aneurismal cavity, as large as a billiard ball. Where this sac projected into the pericardial sac, it was very thin, and an oblique rent existed. The femoral artery was plugged, just below the origin of the profundus, by a mass of disintegrating adherent fibre of a brown colour. The kidneys presented several embolic patches.—("Brit. Med. Jour.," Feb. 27, 1875.)

Annular Constriction of the Aorta.—Dr. Goodhart, at a meeting of the Pathological Society of London, showed two specimens of annular constriction of the aorta, the constriction commencing just below the origin of the left subclavian artery, where the ductus arteriosus opens into the aorta. Both subjects were males, aged respectively seventeen and thirty-seven years. In both the aortic and mitral valves were thickened from endocarditis, and there was evidence of chronic inflammation about the aorta, at the entrance of the ductus arteriosus, which had probably been the starting point of the constriction.—("Lancet," May 22, 1875.)

Occlusion of the Coronary Arteries.—Dr. Greenfield, at a meeting of the Pathological Society of London, February 16th, 1875, exhibited a specimen of occlusion of the coronary arteries. The woman was only twenty-seven years of age. Death had taken place suddenly, with no previous symptoms. The heart weighed eight ounces; its valves were healthy, but the commencement of the aorta, immediately above the sinuses of Valsalva, was considerably thickened for about half an inch; the orifices of the coronary arteries were so narrowed as only to just admit a bristle. There were a few patches of atheroma in the coronary arteries themselves, but the calibre of the vessels was

normal, and they were free from clot. The absence of fatty degeneration of the heart was remarkable. Dr. Greenfield had not found any record of closure of the coronary arteries in a patient so young as twenty-seven.—(*"Med. Times and Gaz.,"* March 13, 1875.)

Congenital Disease of the Aortic Valves.—Dr. Cayley, at a meeting of the Pathological Society of London, showed a specimen of congenital disease of the aortic valves from an infant of seven months, who had never been well from birth, and was suffering from dyspnoea and wasting when first seen. There was a loud systolic murmur audible all over the cardiac area, but nothing abnormal about the second sound. Cyanosis supervened before death. There was constriction of the aortic orifice, and the valves were covered with thick fibrous vegetations, clearly of old standing. The left ventricle was hypertrophied. The foramen ovale was closed, and the ventricular septum perfect, so that, if congenital, the disease must have begun very late. Sir W. Jenner thought that if the disease had existed before birth the foramen ovale could not possibly have closed.—(*"Lancet,"* Nov. 7, 1874.)

Incompetence of the Aortic Valves.—Dr. G. W. Balfour, in a clinical lecture on incompetence of the aortic valves, deals with the pathology and treatment of the affection. He describes three possible conditions of the left ventricle.

1. A condition of over-compensation, one of extreme rarity.
2. A perfect balance of compensation.

3. We may have, from the moment that aortic leakage sets in, a dilating power acting on the left ventricle, which from physical causes, must gradually increase. The dilatation which commenced the organic disturbance continues ever to advance, the compensating hypertrophy which follows continues ever to lag behind, till, apart from any nutritional disturbance whatever, a point is reached when asystole is threatened, because the weight of the dilating fluid is in excess of the contractile force of the ventricle. At this moment it is fortunate for the patient that the increased weight of blood is always accompanied by increase of dilating power, so that just at the moment that ventricular paralysis is threatened, a way of escape is prepared, the segments of the mitral valve give way, and by regurgitation into the left auricle, the overburdened ventricle is relieved, and the inevitable end postponed. These results of hydrostatic influences may be precipitated by any general or local disturbance of nutrition. Whenever, from general debility, the hypertrophy of the left ventricle is interfered with, asystole and sudden death may occur. Defects in the nutritional qualities of the blood must impair the working power of the heart, but all the ills of spanæmia may be surpassed by any positive interference with the local supply of blood even of good quality. When the semilunar valves have given way, the aortic sys-

toxic wave entering the coronary arteries is not only diminished by the amount of regurgitation present, but has its tension correspondingly lowered, the result being an imperfect flushing of the heart-tissues with arterial blood at a pressure below the normal. This and other conditions tend to bring about a state of persistent venous congestion of the cardiac muscular tissue with defective arterial supply. Brown atrophy of the cardiac muscle may follow, but the most frequent alteration is that of yellow atrophy (fatty degeneration) affecting chiefly that part of the ventricle where its nutrition is most effectively shackled by the pressure of the dilating force (acting in accordance with Pascal's law), viz., the sub-endocardial layer of the muscular substance both of the ventricular wall and of the papillary muscles. A condition of cardiac fibrosis may also result.

The pulse of simple aortic regurgitation is something entirely *sui generis*. Its characters are fully described, and the author concludes that whenever we have a visible locomotive pulse, which is delayed beyond the commencement of the relaxation of that ventricular systole which has originated it—as marked by the occurrence of the pulmonary second sound—then we have to do with an aortic regurgitation, which is probably great in proportion to the delay of the pulse.

The probability of life is very greatly in favour of mitral lesion. We cannot estimate with certainty the value of life in any given case of aortic lesion; but we may with tolerable accuracy fix the limits of vitality as lying between three months, in cases of unfavourable rupture of the aortic valves, and twenty-five years, in cases of disease occurring under favourable circumstances. In the case of those persons who come under treatment on account of serious disturbance of compensation, the circumstances are much the same as with those suffering from traumatic rupture of the aortic valves, four years will include the day of death in by far the larger proportion. This is by no means the case in mitral incompetence.

The frequency of sudden death in cases of aortic incompetence is the next point commented on. It is by no means difficult to say which of all the cardiac lesions is most likely to prove suddenly fatal. Death from any cardiac lesion occurs from syncope, and this is brought about in two ways. First, by gradually increasing asthenia, in which the aortic blood-pressure slowly fails from day to day, till at last it drops below what is compatible with life, and death ensues. Second, by asystole, in which the aortic blood-pressure suddenly falls below that necessary for the maintenance of life, because the left ventricle ceases to act. When the muscular walls are enfeebled from inflammatory infiltration, fatty or fibrous degeneration, they may suddenly cease to act at any moment; if valvular lesion exist, this result is likely to be much more frequent in connection with aortic incompetence than with

any other valvular lesion. In mitral constriction and in mitral regurgitation, sudden death from asystole is somewhat rare, the more usual mode of death being syncope from asthenia, brought about by secondary diseases, such as pulmonary apoplexy, or more slowly by dropsy, with or without jaundice or albuminuria; or suffocation suddenly induced by pulmonary oedema. On the other hand, in aortic incompetence the constant and continually increasing dilating pressure of the blood-column acts as a permanent obstacle to ventricular contraction. The pause of a second, in consequence of trifling exertion or some emotional excitement, even with a comparatively healthy ventricle, permits the dilating power, already barely compensated, to turn the scale, and, after a few feeble attempts to overcome the obstacle, the primary syncope passes into death from asystole, the heart remaining in a permanent diastole.

The most injurious effect of aortic incompetence is produced by the dilating force of the column of arterial blood, which, according to Pascal's law, acts in proportion to its height and the area of its basis; the primary object in treatment must be to reduce, as far as possible, both of these elements. Rest, in the recumbent position, is therefore of the greatest importance. In this way we attempt to lower the height of the arterial column, and we should simultaneously attempt to diminish the area of the base by the administration of digitalis.—("Med. Times and Gaz.," March 6, and April 10, 1875.)

Double Arch of the Aorta enclosing the Trachea and Œsophagus.—Dr. Curnow, at a meeting of the Pathological Society of London, exhibited a double arch of the aorta, taken from a female, aged eighty-seven. The vascular circle was formed in front by a left brachiocephalic trunk, the first part of the left subclavian, and a communicating branch to the posterior aortic arch, joining it at about three inches from its summit: behind by a posterior and larger arch, from which the right carotid and then the right subclavian took origin. The ductus arteriosus joined the right extremity of the communicating vessel, and was impervious. During foetal life, the blood-current must have passed from the arterial duct through the communicating vessel into the descending aorta, whilst after obliteration of the duct a volume of blood, equal to that which was carried into the distal portion of the left subclavian artery, still passed from the first part of the subclavian through the same communication into the aorta. There was no transposition of the viscera. Dr. Curnow looked upon the specimen as exemplifying a persistently pervious condition of both fourth vascular embryonic arches; the right being posterior to the trachea and œsophagus, and forming the main aortic arch; the left being anterior, and forming the left brachiocephalic trunk of the first part of the left subclavian; whilst the left aortic root also persisted as the patent communicating vessel. The analogy of this arrangement to

the ordinary reptilian type was pointed out. The practical interest of the specimen was in the absence of any dyspnoea or dysphagia in the case, which went strongly to disprove the possible existence of any difficulty in swallowing being ever due to an abnormal deviation of the larger vessels—the so-called "*dysphagia lusoria*."—("Brit. Med. Jour.," Dec. 26, 1874.)

Diseased Pulmonary Arteries.—Dr. Coupland, at a meeting of the Pathological Society of London, showed a specimen of disease of the pulmonary valves with a dilated pulmonary artery, and a patent foramen ovale. The patient was seventy-five years of age, and had suffered from cough for eight months. When admitted into the hospital, he had cough, oedema of the legs and scrotum; there was emphysema, and a double murmur was heard over a large area. After death, the heart was found to weigh twenty ounces. Both chambers were dilated and hypertrophied. The pulmonary artery was six inches and one-eighth in circumference at its greatest point of dilatation. The arterial coats were very thin. The pulmonary valves were thickened, prized with vegetations, and incompetent to close the orifice, which measured three inches and one-eighth in circumference. The branches of the pulmonary arteries were dilated and atheromatous. Dr. Coupland rejected the hypothesis that these changes were either rheumatic or the effect of congenital malformation, and regarded them as due to strain—to the great tension in the pulmonic circulation caused by the obstructed blood-flow in the emphysematous lungs. In evidence of this, he pointed out that the mitral and aortic valves were healthy.—The President thought that the opening of the patent foramen ovale was so oblique that no blood-current through it was practicable.—("Brit. Med. Jour.," Nov. 21, 1874.)

Dr. Henry M. Tuckwell reports cases of *Clotting of the Blood in Gout and in Chlorosis*. He says:—

"Besides gout, there are yet other abnormal states of the body in which the blood is liable to coagulate either in the veins or in the cavities of the heart. One of these abnormal states is, I believe, chlorosis; and it might seem strange, if my belief be right, that a condition of body apparently so opposite in all respects to the gouty habit should yet lead to the same changes in the blood. But there seems to me to be this difference in the manner of coagulation in the two states.—In gout it is, as far as my observation goes, the superficial veins which are first obstructed, and, nine times out of ten, the veins of the legs. I have only once seen the superficial veins thus affected in the arm of a man whose family history suggested gout as the cause of the clotting. From the superficial veins the coagulation creeps up towards the larger veins, which become last of all involved. In chlorosis, on the contrary, the clotting will take place haphazard in

any vein—in the femoral veins, the cerebral sinuses, or even in the cavities of the heart. Again, it appears that in gout the veins themselves are inflamed prior to the coagulation of the blood in them; that in chlorosis there is no such preparatory phlebitis recognisable. Hence, from this point of view, we should speak of gouty phlebitis and chlorotic thrombosis.”—(“St. Bartholomew’s Hosp. Rep.,” Vol. x.)

CLINICAL MEDICINE.

Parotitis.—Three epidemics of this disease are reported in the Statistical Report of the Health of the Navy, published in July, 1874. Twenty-one cases occurred on board the “Implacable;” in four of these metastasis to the testis was recorded.

Thirty-seven cases occurred on the “Impregnable.” Both glands were affected in all; in two, metastasis to the testis took place, and in two the testes were first attacked, the parotids becoming afterwards enlarged.

Thirty-eight cases occurred on the “St. Vincent.” In ten the right parotid was affected, in six the left, and in twenty-two both glands. In four of them metastatic enlargement of the left testicle occurred, whilst the right testis was affected in one.—(“London Med. Rec.,” July 15, 1874.)

Exophthalmic Goitre.—Dr. Cheadle publishes a second series, consisting of six cases of exophthalmic goitre, a sequel to a series consisting of seven cases, published in 1869. These examples exhibit much the same features, and support the same conclusions as those previously recorded; yet one group of cases possesses fresh interest from the fact of their occurring in persons of the same family, viz., in a woman and her two nieces, the daughters of her sister, while another niece, her brother’s child, has goitre, probably exophthalmic in its nature. In the series of cases now published all the patients were women. In all there was some disorder of menstruation. Whether the disorder of menstruation and the exophthalmic phenomena were in any degree connected, otherwise than as common results of the same disturbed nervous state, is uncertain; but the association is too frequent to be accidental or irrelevant.

As regards the cause of the disorder, the curious group of cases occurring in the branches of one family supports the view that the disease is a pure neurosis, which, like other neuroses, is liable to be hereditary. It is a significant fact, also, that in two of the most severe cases, the disorder was attributed to nervous shock. The fluxes, the sweating, and the diarrhoea, with the flushing and sense of heat which were observed, seem to show that the vaso-motor system is seriously involved. The elevation of temperature observed in all the cases but one, and which amounted to a degree or degree and a half, indicate the same conclusion.

The only case in which decided improvement seemed to depend on treatment was one in which iodine was given; in this case the thyroid and cervical glands, which were greatly enlarged, suddenly and rapidly diminished to their normal size. In none of the other cases was iodine given, owing to an apprehension that it might increase the distressing palpitation.—("St. George's Hosp. Rep.," Vol. vii., 1875.)

A well marked case of "anæmic exophthalmic goitre" treated by seton through the goitre and digitalis, at the Cork Ophthalmic and Aural Hospital. By H. Macnaughton Jones, M.D.

Elizabeth Connor, aged 27, machine-worker, admitted to hospital August 21st, 1872. She had had constant work at a foot-machine for seven years. She came under observation in August, 1872, with the following symptoms:—Eyes prominent, protruding from the orbits; slight inflammation of the conjunctivæ, with a few small marginal ulcers of the corneæ; pupils partly dilated; well marked retraction of the upper lids, as noticed by Von Græfe; apparently the lids only closed on voluntary effort; the right eye was the more prominent. She complained occasionally of darting pain in the left eye. On examination with the ophthalmoscope, there was general dilatation of all the retinal veins, and well marked pulsation in the retinal arteries of both eyes, with some atrophic spots here and there, but more particularly in the left eye. There was violent action of the heart, with increased area of dulness, the heart-sounds being heard to the right side and over all the superior portion of the chest. No bruit could be detected. She was certain that the eyes were more prominent in the morning. Distinct pulsation of both carotids was visible at a considerable distance from the patient. Pulse 110. The girl was wretchedly unhealthy-looking, anæmic, thin, and quite hysterical, bursting into tears occasionally. The catamenia had not been regular for a considerable time, and ceased altogether some months since. She was greatly debilitated, complaining of pains in the back, and loss of sleep from excessive and most distressing palpitation, particularly complaining of the violent beatings of her heart, which were most annoying. The neck was greatly enlarged by a goitre measuring $6\frac{1}{2}$ inches from side to side and $3\frac{1}{2}$ deep, involving the entire thyroid gland. This enlargement appeared, she said, before the protrusion of the eyeballs (five months previously); but she paid no particular attention to it until the eye became prominent, when she sought some relief, and was put under treatment for the goitre. The right lobe of the thyroid gland was most enlarged. Her vision with both eyes was equal to $\frac{3}{8}$. Altogether, this patient presented a most pitiable appearance. She was obliged to relinquish her work at the machine, and was in consequence badly nourished, and had for some time been supported by a charitable association. The treatment consisted in the ad-

ministration of digitalis combined with steel, the former being given until the heart-beats were reduced to 50 in the minute; and then quinine and iron with bromide of potassium alternated.

A long seton was passed through the goitre; and, on its suppuration, small caustic darts of chloride of zinc were pushed in, as formerly advised by Dr. Morrell Mackenzie. She remained in hospital until Christmas, 1872, when she was discharged much improved, still wearing the seton and continuing alternately her medicine. The goitre was greatly reduced; the eyes were not nearly so prominent; her general appearance, health, and spirits, were altogether widely different from what they were at the time of her admission. She continued under treatment during the whole of 1873, and the improvement was maintained.—(“Brit. Med. Jour.,” Dec. 19, 1874.)

Exophthalmos.—Dr. Wm. Moore, at a meeting of the Dublin Pathological Society, reports a case of exophthalmos, with violent palpitation, but not associated with thyroid enlargement. The patient, a woman, aged forty, had been complaining of cardiac disturbance for nine months, when she died from the effects of diarrhoea. At the post mortem examination, no structural lesions could be found which would account for her symptoms. Dr. Moore, therefore, inferred that the disease was of neurotic origin, and the case, one of cardiac pulsation, with exophthalmia, but without the pulsating thyroid body.—(“Dublin Jour. of Med. Science,” March, 1875.)

Bronchocele.—Dr. Fenwick reports a case of bronchocele and proptosis of seven months' duration, in a married woman, aged 33. She was discharged after four months' treatment, much benefited by citrate of iron and quinine internally, and application of an ice-bag to the bronchocele. Also a case of remittent bronchocele from childhood. Proptosis of one month's duration. Patient aged 25. Discharged after four months' treatment, without apparent benefit. Easton's syrup was first given, afterwards citrate of iron and quinine, and local use of the ice-bag.—(“Med. Times and Gaz.,” Sept. 5, 1875.)

Laryngeal Polypus Expelled by Coughing.—Mr. Arthur W. Robson (Leeds), in a paper read before the Leeds and West Riding Medico-Chirurgical Society, reports a case of laryngeal polypus, expelled by coughing.

The patient, aged 51, had been hoarse for 13 years, but her voice had become reduced to a whisper, and her breathing occasionally difficult only 12 months before application for advice. Soon afterwards she had some hæmorrhage from the throat, which continued slightly for 10 hours, at the end of which time she coughed and brought up a substance with great relief. Three days afterwards she spoke clearly, breathed freely, and her larynx appeared quite healthy

in the laryngoscopic mirror. No scar could be seen. The tumour was oblong, with rounded angles, measuring six lines long: three broad, and two thick. The pedicle was attached to one extremity. Under the microscope, the growth presented the appearance of myeloid sarcoma.—(“British Med. Jour.,” May 29, 1875.)

On Winter Cough, Catarrh, Bronchitis, Emphysema, Asthma.—By Horace Dobell, M.D. Third Edition. (Churchill, 1875.)

This volume contains a new introductory chapter on the perivascular system and its relation to diseases of the respiratory organs. The author thinks that one of the greatest works now open to physiologists, pathologists, and physicians, is to bring the perivascular system of canals within the area of our daily interpretation of the phenomena of disease, and thus to suggest new means of treatment in cases hitherto beyond our control. To this end, Dr. Dobell proceeds to inquire into the meaning and probable explanation of certain clinical phenomena, with the aid of such fragments of information concerning the perivascular system as have already been published, and the most important of which he appends in foot-notes.

Cases have been observed by him which are characterised by the presence of certain peculiar phenomena, viz:—

That the patient could not sleep without afterwards suffering from a profuse discharge of watery mucous (the water abundant, the mucous elements scanty) from the anterior and posterior nares, and of tears from the eyes, this discharge being preceded by a distressing sense of confusion, worry, irritability, and general hypersensitiveness of the whole brain, but especially of the posterior and upper parts, and accompanied by sharp flying pains through the brain, and not uncommonly by a peculiar liquefied feeling, as though the brain had lost its density, but distinguishable from ordinary vertigo, or swimminess.

The fact of having *been to sleep* is, in these cases, the sufficient cause for the unpleasant effects above described, and for those yet to be mentioned. Neither the position in which the sleep is taken nor its duration are essential factors, although certainly they have some influence on the intensity of the symptoms; the more horizontal the position and the longer the sleep the greater the intensity of the effects; but they will occur although the sleep has been of short duration and taken in a perpendicular position.

The above brain-symptoms are *premonitory* of the discharge of watery mucus from the anterior and posterior nares and of tears from the eyes; but they are separated from it by a longer or shorter interval during which they undergo a distinct change. The worry, irritability, etc., etc., gradually clear off, and are, sooner or later, succeeded by frontal and port-nasal fulness, as in the congestive stage of influenza or coryza. But this soon culminates in the profuse

secretion and discharge. As a rule, the premonitory symptoms having once occurred, there is no escape from the second set of symptoms ending in the hypersecretion, and the profuseness and duration of the secretion bear a direct relation to the severity of the premonitory symptoms.

Occasionally, however, but very seldom, the second set of symptoms does not occur. The interval between the sleep and premonitory symptoms and the second set, or culminating symptoms, varies greatly in length; and as it is rare to be able to watch a case through more than twenty-four hours without the recurrence of sleep, the sequence of effects becomes confused by the repetition of the cause. But Dr. Dobell has watched one of these cases through forced sleeplessness of forty-eight hours at a time, and found that the premonitory symptoms having once passed off without being succeeded by the second set, did not, as a rule, recur till sleep was repeated. He says "as a rule" because there are other circumstances besides sleep, in all these cases, which will produce the characteristic succession of phenomena. All these circumstances, when closely investigated, may be classed under the head of *temporary determination of blood to the brain*, and this is a very important point.

The persons who suffer from the above symptoms are especially liable to fits of *Asthma*, and the principal antecedents of the asthmatic attacks are—1, sleep; 2, circumstances which may be classed as known causes of pulmonary hyperæmia, such as rapid exercise, etc. They are not always asthmatic, but they seldom escape. Sometimes a patient will remain "a sneezer" (sneezing asthma), and escape asthma for years; sometimes he may almost cease to be a sneezer, and become an asthmatic for years; sometimes he may begin as an asthmatic, and then change into a sneezer. Sometimes, and this is most frequently the case, he is both a sneezer and an asthmatic; one day the symptoms culminating in sneezing, and another in asthma; or both sneezing and asthma may occur at once, in which case one or other generally takes the lead in severity while the other passes off more lightly. When they are to terminate in a paroxysm of asthma, the events follow substantially the same order as when they are to culminate in the discharge from the eyes and nose; but pulmonary oppression takes the place of weight in the frontal and post-nasal cells, and mucous expectoration is substituted for coryza. The following are the principal difficulties in explaining the above facts.

Prima facie, they appear to indicate hyperæmia relieving itself by hypersecretion. But if this were the whole truth, the hyperæmia should begin with the sleep, and persist till relieved by secretion. Whereas, in the cases under consideration, the hypersecretion in which the circle of symptoms culminates, is separated from the sleep by an indefinite interval; a whole working day, for instance, inter-

vening, during which all the functions of both brain and lungs may be performed with apparent freedom from hyperæmic signs, and the first set of symptoms (the "premonitory") passes off, and is succeeded by a second set, apparently due to swollen mucous membranes, which symptoms are the immediate antecedents of the hypersecretion, by which they are relieved.

Thus we have the following succession of phenomena :—

- a. Sleep, and ordinary cases of temporary cerebral hyperæmia.
- b. Brain symptoms, produced alike by either of these factors.
- c. An interval, during which these symptoms give place to
- d. Symptoms of swelling of mucous membrane, continuing, until relieved by
- e. Hypersecretion.
- f. Return to a normal state.

Dr. Dobell says that, if this succession of phenomena is to be explained by hyperæmia, relieved by hypersecretion, it is inconsistent with the present theory that sleep is coincident with vascular contraction and consequent cerebral anæmia. For on that theory how can sleep come in as a factor on the same terms as causes known to produce temporary cerebral hyperæmia? On the other hand, if sleep is accompanied by cerebral hyperæmia instead of anæmia, and the hypersecretion is to be taken as its direct result, then the interval occupied by (c) and (d) ought not to exist.

The idea suggested to him by these considerations is, that there is an intermediate condition not yet recognised, which is common to the vascular contraction of sleep and to the subsidence of temporary cerebral hyperæmia; and the important question for solution is, What is the nature of this supposed intermediate condition?

When we turn from the cerebral to the pulmonary set of phenomena, we find their explanation surrounded by similar difficulties. If the lungs are rendered hyperæmic by sleep and by the other antecedents of the asthmatic paroxysm—such as rapid exercise; and the pulmonary oppression, asthmatic paroxysm and hypersecretion are simply the expression of hyperæmia and its effects, relieved by secretion, without any not yet recognised intermediate condition; then the hyperæmia should be found at its acme at the end of sleep, or at the end of rapid exercise, and should persist in both cases until relieved by the hypersecretion. But this is not so in either case. An interval constantly intervenes, and is often considerable, during which hyperæmic symptoms do not persist, and which is followed by pulmonary oppression, finally relieved by hypersecretion.

It is necessary to guard against misapprehension, due to the fact that an asthmatic person *so often wakes with a paroxysm* after a certain number of hours' sleep, which at first sight makes it appear that the immediate effect of the physiological condition of sleep has been the

paroxysm and the secretion. But this is only a deception, for one hour's sleep, followed by three hours' awake, may in these cases be followed by the paroxysm, etc., just as much as if the whole four hours had been spent in sleep; the complete establishment of the physiological condition of sleep being the necessary factor, and whether the succeeding interval is passed in sleep or awake, the effects of the factor follow in their due course.

Thus, supposing the sleep and other antecedents of the asthmatic paroxysm are accompanied by pulmonary hyperæmia, this state is not apparently continued up to the time of hypersecretion; as it ought to be if there is not an intermediate condition, as already suggested. We have, then, in the case of the pulmonary phase of these cases:—

a. Sleep and ordinary causes of temporary pulmonary hyperæmia.

b. An interval during which there is freedom from asthmatic symptoms.

c. Pulmonary oppression and asthmatic paroxysm.

d. Hypersecretion.

e. Return to the normal state.

The symptoms called *premonitory*, under the cerebral phase, will be more or less absent in the pulmonary phase, according as it is complicated or not with the cerebral. Now, supposing the accepted theory of cerebral anæmia and sleep to be true, how is it that:—

a. Cerebral anæmia of sleep;

b. Pulmonary hyperæmia of sleep;

c. Cerebral hyperæmia, from known causes of temporary cerebral hyperæmia;

d. Pulmonary hyperæmia, from known causes of temporary pulmonary hyperæmia; in the cases under consideration, all occur in the same category as factors, followed by the same peculiar phenomena, viz., over-fulness and oppression of the neighbouring mucous tracts, relieved by hypersecretion from them, these phenomena being separated by a distinct interval from the sleep and other antecedents enumerated.

The hypothetical explanation which Dr. Dobell has suggested is an *intermediate state common to all the given antecedents*, and in answer to the question, What is this intermediate state? He suggests that it is *distension of the perivascular system of canals with liquor sanguinis*, migrated from the red-blood-vessels; that in the normal state an immediate return of fluid from the perivascular system to the red-blood-vessels takes place on the return of normal circulation in them, and that the abnormal physiological condition which exists, in the peculiar cases under consideration, consists in a derangement of this power of instantaneous change of place between the contents of the two sets of vessels. It

may be, of course, that normally the whole burden of removing the perivascular fluid belongs to the lymphatics, and that the abnormal state in these cases consists in a defect in the power of the lymphatics to do this with the requisite rapidity.

On the return of normal circulation in the red-blood vascular system of the organs concerned, they are left saturated with the contents of the perivascular canals, the burden of removing which is thrown from the blood-vessels upon the lymphatics and upon the neighbouring mucous tracts; this slower process of relief occupying the interval between the two sets of phenomena to which special attention has been directed. And it is evident that the length of the interval will depend upon—

1. The degree of perivascular saturation;
2. The extent of the defect in the power of normal restitution between the two sets of vessels;
3. The activity of the lymphatics and of the mucous membranes.

It is also evident that such an abnormal condition, dependent, as it would most probably be, on the vasomotor nervous system, would be very subject to variations in degree, and might easily and rapidly pass away under exceptionally favourable circumstances. If the hypothetical explanation suggested should prove to be correct, it would appear to involve the conclusion, that if a contracted anæmic condition of the red-blood vascular system of the brain is a necessary condition of sleep, this is coincident with migration of liquor sanguinis into the perivascular canals, by which concurrence of circumstances the necessary element of equally balanced cerebral pressure is maintained, while the element of functional excitability, due to the abundant circulation of red blood, is removed; thus functional rest without arrest of nutrition is secured. If this reduction of red-blood circulation, with the substitution of liquor sanguinis saturation is the cause of sleep, it will account for many of the phenomena of cerebral diseases and their relation to sleep and to ordinary causes of cerebral hyperæmia, which are unexplained by the theory of cerebral anæmia without perivascular saturation. And any defect in the power of instant substitution of red-blood circulation for liquor sanguinis saturation will henceforth constitute a most important element in cerebral pathology, and when regarded in connection with the peculiar and puzzling coincidence of phenomena characterising the cases which have been especially alluded to, will, Dr. Dobell hopes, throw hitherto unseen light upon the physiology of asthma, cerebral disease, and sleep, opening up new ideas with regard to treatment.

In concluding this subject, Dr. Dobell says :—" I must point out the remarkable importance, in relation to diseases in the chest, of the newly-discovered *pump-like action of the Diaphragm* upon the lymphatic system.

"No complication of chest complaints is more distressing to the patient and distracting to his physician than the setting in of dropsy, and anything which contributes to our knowledge of its pathology, and assists us to find new means for its prevention or relief, must be greeted by all practising physicians with the warmest feelings of gratitude. And such gratitude is due to the discoverer of this hitherto unknown action of the diaphragm in respiration upon the circulation in the lymphatics. It is impossible to contemplate the statement given by Klein in his admirable monogram on the lymphatic system of the diaphragm, without being convinced that henceforth we must add to the hitherto recognised causes of dropsy in chest disease, the paralysed condition of the diaphragm; and we shall at once see that the removal of this by all practical means ought to form one of our anxious considerations in the treatment of winter cough, catarrh, bronchitis, asthma, and other forms of chest diseases."

The following are some of the principal points requiring notice in this third edition :—

One of the accidental *complications of Winter Cough* needs an especial caution. Every now and then an attack of bronchial catarrh will be accompanied by active congestion of portions of lung-tissue, and if the patient is predisposed to tuberculous disease, and happens at the time to be in depressed general health, there will be great danger of the occurrence of tuberculisation in the congested tissue. Independently of a tuberculous diathesis, these attacks of active congestion of portions of lung must be regarded with apprehension, for their repetition in the same part, or their accidental occurrence with unaccustomed severity, will lead to disintegration of the affected tissue, and although unaccompanied by any deposit of miliary tubercle, the patient's life will be placed in great jeopardy by a chronic wasting disease having many of the characters of tubercular consumption.

The value of Dr. Dobell's *Residual Air Pump* in the treatment of emphysema, first introduced to notice in 1872, has been confirmed by recent experience; some good may be done in even chronic and aggravated cases; and in recent cases, where the cells are over-distended, but not yet deprived of their elastic properties, permanent curative effects may be expected from the frequently repeated use of such mechanical assistance as this instrument affords.

Aconite, in the treatment of chest affections, deserves to stand in the front ranks. In doses of from one to two minims of the tincture every hour, it is of the utmost use in the early stages of nasopulmonary catarrh; but its use should be confined to the stage of active vascular turgescence. In the treatment of bronchitis in asthmatic subjects, aconite may be brought in with the greatest service after ammonia and antimony, just as the latter has attained its

end and begins to depress too much without compensatory good. It may be combined with ammonia, and with the best effect.

Senega irritates the cough. If there is too little cough in proportion to the secretions requiring removal, it is an invaluable medicine; but it should be restricted to this object. As an internal remedy it does not promote secretion, but on the contrary, its effect is drying and irritating, and therefore it should not be given if secretion is deficient. If the cough is already frequent it does harm.

Copaiba is less used than it ought to be in affections of the naso-pulmonary mucous membrane. In chronic bronchitis and chronic catarrh, unattended with fever, it is especially valuable, arresting the tendency to excessive muco-purulent secretion.

Cubebs deserves a very high place amongst the remedies for naso-pulmonary catarrh, and does not (like *copaiba*) derange the digestive organs.

Chloride of Ammonia has the power of rendering the secretions of the mucous membranes less viscid and tenacious; at the same time that it is somewhat stimulant or tonic, or at least not depressant in its general effects.

The following list of remedies for asthmatic spasm is given (p. 194):—

Smoking *Datura Tatula*, or *Stramonium*.

Cigares de Joy.

Inhaling the Fumes of Nitre Paper.

Ethereal Tincture of *Lobelia Inflata*, in 10 to 30 drop doses.

Whenever the spasmodic tendency can be traced to (a) Gouty, (b) Rheumatic, or (c) Malarious causes, the administration of colchicum, alkalies, quinine, arsenic.

Papier Fruneau (à Nantes.)

Dr. Palmer's Anti-Asthmatic Paper (Dublin.)

Ozone Paper.

Papier de Barrel.

Martindale's Pastilles.

Cigarettes de Barrel.

Cigarettes of *Eucalyptus Globulus*.

Pariss's Cigarettes Pulmoniques.

Cigarettes d'Espic.

Inhalation of Ether.

Inhalation of Camphor.

Inhalation of Nitrite of Amyl (with great caution as to the purity of the drug and limitation of the dose.)

Cautious inhalation of Chloroform.

Chloral Hydrate, in doses of five to thirty grains.

Indian Hemp, either smoked or given internally.

Belladonna.

A *spray* containing alum, gallic acid, or perchloride of iron, has been of service in arresting obstinate hæmoptysis when other remedies have failed.

Turpentine may be used with advantage in chronic bronchitis by evaporating two or three tablespoonfuls in the patient's sleeping-room during the night. This may be done by putting it into the upper portion of Clark's Pyramid Food Warmer.

The old fashioned *pitch plaster* applied over the front of the chest and between the scapulæ, and renewed from time to time during the winter, is a remedy well worth revival, as it gives great comfort and benefit.

Choral Hydrate must be added to our list of remedies for cough. In doses of 5 to 10 grains given with liquid extract of liquorice, it is a most potent remedy in some cases of irritable and paroxysmal cough, but it should be discontinued if no good effect results at once.

Squire's Bimeconate of Morphia should be the form selected whenever an opiate is unavoidable. It disagrees much less with digestion than opium, constipates less, and is less inclined to produce head-ache.

Pancreatine after meals will keep up good digestion in spite of the paralyzing effects of opiates.

Eucalyptus Globulus, has proved a valuable tonic in catarrhal affections accompanied with a tendency to remittent feverishness, and will sometimes suit when quinine disagrees. This will be worth remembering in spasmodic asthma, when quinine is found to bring on the spasm.

Sneezing and Hay Fever.—In the Appendix to this work Dr. Dobell republishes a paper which he contributed to the "Pharmaceutical Journal," June 27, 1874, on a new remedy for sneezing; consisting of the local application of the following mixture, by means of a little ivory club, to the interior of the nostril. The remedy, including the contrivance for its application, is contained in a little box which can be carried in the waistcoat pocket.

R. Chloral hydrate and camphor (of each), 16 grs.; carbolic acid, 20 grs.; *Pure morphia*, 12 grs.; oleic acid (enough to dissolve the morphia), 7 grs.; castor oil (the clearest and finest), 7 drachms. Rub well together to make a lotion. And he advises tinct. of eucalyptus globulus to be given in sneezing and hay-fever, where there is much prostration, as sometimes preferable to quinine, especially if there is much fever.

The Functions of the Uvula.—Dr. Dobell reprints, in the Appendix to this work, a clinical note which he published, September 5, 1874, in the "British Medical Journal," pointing out that one function of the uvula, hitherto unnoticed, is to act as a conduit to bring the watery secretions from the back of the nose to the front of the epiglottis, whence they may be carried down the throat by deglutition; whereas, but for the uvula, they would be liable, when profuse, to drop

behind the epiglottis, and thus cause discomfort by getting into the larynx.

The Appendix contains a very intractable case of spasmodic asthma and bronchial congestion, related by the patient, which had continued more or less for about fifty years. The following remedies had all proved useless in relieving the spasm:—Espic cigarettes, datura tatula cigarettes, Pariss's cigarettes pulmoniques, De Joy's cigarettes, nitre paper, papier Fruneau, Martindale's pastilles, fumes of burning resin, inhalation of chloroform, stramonium smoked and inhaled, inhalation of ether, emanations from sulphur baths, Turkish baths, galvanism, electricity. But during many years signal and almost instant relief was obtained by strong coffee, and by burning Dr. Palmer's Dublin anti-asthmatic papers. When this case came under Dr. Dobell's notice, both the coffee and Dr. Palmer's papers had for some time been gradually losing their beneficial effects, and had at last become nearly useless. This he considered to be due to the serious increase of bronchial congestion, which had evidently been steadily taking place for months. With this view he put the patient under the influence of antimony with ammonia, followed by blisters and aconite, with such signal success that after this the coffee and Palmer's papers recovered their former power over the asthmatic spasm.

Poulticing by Steam.—In the Appendix, Dr. Dobell publishes a description of his new invention of poulticing by steam, as exhibited at the Norwich meeting of the British Medical Association, August, 1874. After discussing the objects to be aimed at by poulticing and the difficulties to be overcome, he gives the following *resumé* of the conditions essential to the efficient application of local heat when the object is *the removal of inflammation by resolution*.

(a) The *heat* should be *extensively* applied, not confined to the inflamed part, but extending also to the surrounding tissues.

(b) It should be *equally* applied; there should be no point in the application at which the temperature culminates.

(c) It should be *persistent*; the application should be so contrived that the temperature may be kept up for a considerable time.

(d) The poultice or dressing should *not require frequent removal*, for it is often essential to the success of the treatment that the parts shall remain at rest.

(e) *The heat should be moderate.*—The application should be of such a kind that it may not be necessary to apply it at a higher temperature than is consistent with the integrity of the tissues with which it comes in contact, and with the objects of treatment. All of these conditions, with the important addition of *lightness*, he considers are fulfilled by his contrivance for poulticing by steam, which he especially recommends in treating bronchitis, pneumonia, peri-

tonitis, phlebitis, and other inflammatory affections occupying large areas.

In the Appendix to this work, fifteen pages are devoted to the account of the climate of Egypt, and its suitability for invalids with ample directions for travellers, abstracted from Professor Flower's "Notes of Experiences in Egypt," published in the "Brit. Med. Journ.," Sept. and Oct., 1874.

Original information is also given regarding the climates of Pau, South Africa, and Arcachon.

Pneumonia.—Dr. J. Magee Finny reports some cases of *pneumonia* presenting points of interest.

Case 1. A boy, ten years of age, in whom acute sthenic pneumonia occurred: the whole of the lower lobe was affected; paroxysms of extreme dyspnoea were present; defervescence set in on the eighth day, and recovery was perfect. The absence of any bronchitis, which in children more commonly precedes pneumonia, was a striking feature of the case.

Case 2. A man, aged 22, in whom acute sthenic pneumonia affected the apex of the right lung. Mental delusions and delirium were present, but a crisis by sweating occurred on the eighth day, followed by complete recovery. The implication of the upper lobe was the most striking feature in this case, and it conforms to the usual rule that the right upper lobe is affected more frequently than the left, in the proportion of 18 to 4 (Briquet). The delirium was a very prominent symptom, and the comparative insignificance of cough, pain, and dyspnoea might easily have led to a diagnosis of delirium tremens; the patient, however, was of decidedly temperate habits. The mode of crisis by sweating was well exemplified. He was literally bathed in perspiration for three days, and on the second day presented a crop of sudamina like those of acute rheumatism. Depression of the pulse to 56 during convalescence, and its continuance in this state for four days, was remarkable, not only as having occurred when no cardiac depressant medicine had been given, but also in the absence of all symptoms of collapse. It much resembled the cardiac depression which occurs after crisis in typhus.

Case 3. A man, aged 22, who had pneumonia of the right lower lobe, spreading to the upper lobes, pleuritis of the left side, aphonia, delirium, and collateral œdema, followed by death. The aphonia, an unusual symptom in pneumonia, was considered to be the result of great nervous depression; the absence of all diphtheritic or other physical cause for its production, and its disappearance simultaneously with some indications of improvement in other respects seem to indicate this cause.

Case 4. A woman, aged 45, who had pneumonic abscess in the lower lobe of the right lung, consolidation of the upper lobe, and

hectic. Treatment by cod liver oil resulted in recovery.—("Dublin Journ. of Med. Science," Dec., 1874.)

Dr. Peacock gives an analysis of one hundred cases of idiopathic pneumonia, from which the following statements are selected:—

1. The number of men affected with pneumonia greatly exceeded the women, eighty-one having occurred in men, and nineteen in women. No doubt the greater tendency to pneumonia in men is simply due to their exposure to the exciting causes of the disease.

2. As regards period of life, this analysis indicates that pneumonia chiefly occurs in youth and middle age, when the system is most vigorous, and the liability to exposure the greatest. Thirty-two of the cases were between 20 and 30 years of age; thirty were between 10 and 20: twenty, between 30 and 40; only ten between 40 and 50, and only four above that age, while there were only three children. Seventy-five, or three-fourths of the whole number, were persons between 15 and 40 years old.

3. As regards occupation, it was found that a very large proportion followed laborious employments, which involved exposure in the open air, while comparatively few were engaged in sedentary and in-door work.

4. The largest number of admissions took place during spring and summer. This fact points to the production of the disease rather by sudden alterations of temperature and chills occurring in warm weather, when the functions of the skin are active, than to severe, though more continuous cold.

5. The most frequent mode of attack is with rigors and chills, followed by heat and feverish symptoms, to which difficulty of breathing and pain succeed. Sometimes the symptoms of pyrexia were found to precede the pulmonary symptoms by a day or two.

6. Analysis of the seat and extent of the disease in these cases confirms the conclusions of other observers, M. Grisolle, M. Huss, and others, *i.e.*, the much greater frequency of affections of the lower and posterior parts of the lungs than of the front and upper part.

7. In only three cases did the temperature exceed 104° . In one of these the height recorded was 104.5° on the third day after admission, with double pneumonia, probably also phthisis. In the other two the highest recorded temperature was 104.3° and 104.2° .

8. The number of deaths in ninety-four cases was eleven, or 11.7 per cent.; *i.e.*, one death in 8.5 cases. The tables seem to indicate that pneumonia is a more serious disease in women than in men. In men the rate of mortality was 10.5 per cent., or one death in 9.5 cases; in the women it was 16.6 per cent., or one death in six cases. The most marked influence on the mortality of pneumonia is shown to be the simple or complicated character of the disease. In eighty-four cases

in which comparison can be instituted, of fifty-three *uncomplicated* cases all the patients recovered, while in thirty-three *complicated* ones eight died, or 24.2 per cent. The result of the disease is also much influenced by the extent to which the lungs are involved, as by the limitation of the inflammation to one lung or its extension to both. Thus, it is seen that, of forty-five cases in which one lung only was inflamed, the disease proved fatal in two only, or 4.4 per cent.; while of thirty-nine cases in which both lungs were involved death ensued in five, or 12.8 per cent. This mortality may probably be fairly regarded as representing the average result in cases of pneumonia occurring in this country under similar circumstances.

9. A summary of cases in which pneumonia occurred as a complication of other serious diseases shows how very greatly the super-vention of inflammation of the lungs adds to the danger of the original malady, and how small is the prospect of recovery in such cases.

This analysis of the cases is followed by a large number of tables, giving full details of all points of interest connected with the cases.—("St. Thomas's Hosp. Rep.," vol. v., 1875.)

Pythogenic Pneumonia.—Drs. Grimshaw and J. Wm. Moore publish a paper on pythogenic pneumonia.

The origin of pneumonia, in several instances quoted by the authors, under conditions usually regarded as exciting causes of typhus (over-crowding and defective ventilation) and of enteric fever (fæcal miasm), and the apparent contagiousness of the disease when it arises under such circumstances, seem to justify the application of a distinctive and etiological title—pythogenic pneumonia—to this type of pulmonary inflammation.

Five cases of the disease are detailed, and some general conclusions drawn from them. The paper concludes with an epitome of the principal inferences which may be drawn from the facts before mentioned.

1. The bibliography of pneumonia indicates the existence of a form of the disease which arises under miasmatic influences, and is contagious.

2. This view is supported by the relations which exist between this form of pneumonia and certain zymotic affections—notably, enteric fever and cholera—and by the resemblance between it and the epizootic pleuro-pneumonia.

3. Its etiology justifies us in regarding it as a zymotic affection, and in naming it "pythogenic pneumonia."

4. Pythogenic pneumonia presents peculiar clinical features which enable us to distinguish it from ordinary pneumonia.

5. Much of the pneumonia which prevailed in Dublin during 1874 was of this pythogenic character.

6. Whereas ordinary pneumonia is specially prevalent during

a continuance of cold dry weather with high winds, and extreme variations in temperature, pythogenic pneumonia reaches its maximum during tolerably warm weather, accompanied with a dry air, deficient rainfall, hot sun, and rapid evaporation.—(“Dublin Jour. of Med. Science,” May, 1875.)

Tubercular Disease.—Dr. Hayden, at a meeting of the Pathological Society of Dublin, exhibited the viscera of a man, aged thirty, who had been admitted to the hospital with an anomalous fever. It resembled typhoid, but neither rose-spots were present, nor was there any diarrhoea. The range of temperature was irregular, and there were evening remissions in the fourth week. The extremes were 99° and 103°. On the twenty-eighth day the temperature was 101°; rapid breathing now set in, and the pulse rose. Sub-crepitant râles were heard everywhere over the chest. At the autopsy the lungs, liver, spleen, and kidneys, were found to be studded with granular masses of miliary tubercles.—(“Brit. Med. Jour.,” May 29, 1875.)

Acute Tuberculosis.—Dr. J. W. F. Smith Shand, Aberdeen, reports two cases of acute tuberculosis. The one, a farm-servant, aged seventeen, was only of four weeks' duration; the other, also a farm-servant, aged twenty-two, was of seven weeks' duration. Both cases, in their history and symptoms, presented a close resemblance to enteric fever.—(“Lancet,” Sept. 26, 1875.)

Hereditary Tuberculosis.—Dr. Powell, at a meeting of the Pathological Society of London, showed the lungs from a child aged seven months who had died of hæmoptysis. The case was of interest from the early age at which hæmoptysis had occurred. The child had had a cough for three months before death, and was spitting ropy pigmented sputa. It died spitting dark blood. At the autopsy, the right lower lobe was consolidated; in both lungs the apices had tubercular pneumonia and miliary tubercles. There were two small cavities in the apex of the right lower lobe, the size of a filbert. An exposed vessel ran across one cavity; this had ruptured, and was the seat of the hæmorrhage. The hereditary predisposition was very strong. Five other children had died with chest symptoms. The father had marked signs of consumption, and the grandfather died at the age of thirty-three of consumption.

Arrested Phthisis.—Dr. Theodore Williams, at a meeting of the Medical Society of London, on March 22nd, 1875, exhibited a patient in whom arrested phthisis was unquestionable.

The chief points of interest were:—1. The rapid rate of contraction. 2. The absence of shrinking of the chest walls, or displacement of the adjacent organs. 3. The rapidity of the excavation process, which seemed likely to involve the whole lung. The patient had been under observation since January, 1871.

Dr. Williams remarked that the contraction and obliteration of so large a cavity was, so far as he knew, unprecedented in the records of medical science.—("Lancet," April 10th.)

Hæmoptysis.—In a paper published in the Transactions of the Royal Medical and Chirurgical Society, Dr. Dobell, gives an analysis of 100 male cases of hæmoptysis.

The cases were sifted in the following manner:—1. All cases were rejected in which the blood had never been seen in any other form than "*streaks in the phlegm*." 2. All cases were rejected unless the heaviest weight before the occurrence of hæmoptysis could be stated from *actual weighing*, and reasonable evidence given as to whether this had been the average weight up to the time of first hæmoptysis. 3. All cases were rejected who could not stand a searching cross-examination as to the time at which the *first loss of weight*, if any, had begun. 4. It was soon found necessary to reject all females for the following reasons:—*a*. Their weight could not be relied on. *b*. Pregnancy, lactation, etc., were constant sources of fallacy. *c*. Hæmoptysis was found to be complicated with climacteric and other derangements of the menstrual functions. *d*. It was difficult to obtain any reliable facts. 5. All cases were rejected in which there was reasonable suspicion of cardiac complications. 6. All cases were rejected who could not give a fairly succinct account of the onset of the cough. 7. All cases were rejected who could not give an approximate estimate of the quantity and character of the expectorated blood in the first and subsequent hæmoptysis. 8. And, finally, after the inquiry had been completed, all cases were rejected if it was found, on comparing the principal statements, that they were inconsistent with one another.

The elements of these rigorous rejections are such that they do not give the cases a selected character in the sense of invalidating their claim to represent an *unprejudiced average* of cases of hæmoptysis occurring at a public hospital. They may, therefore, be considered to form a fairer basis for statistics than if no selection had been made, having the great advantage that incomplete and unreliable reports are excluded.

The analysis of these cases, the results of which are epitomised in an abridged table published in the Transactions of the Society, leads the author to the following conclusions.

Hæmoptysis, as a symptom, may be thus classified:—

1. In a large number of cases it is simply the result of congestion and disintegration of a highly vascular organ in the course of a disease of constitutional origin.

2. In a large number of cases it is simply the result of congestion and disintegration of a highly vascular organ in the course of diseases of local origin.

3. In a certain number of cases it is simply the result of accidents temporarily over-distending the vascular system of the lungs, and leading to rupture, in the same way as similar over-distension leads to rupture of vessels in other parts of the body. Whether such over-distension is competent to cause rupture of vessels, the walls of which are not previously diseased, is a very wide question.

4. In a certain number of cases it is the result of the bursting of small aneurisms in the lungs formed in the course of lung disease.

As a cause of lung disease and constitutional decline, hæmoptysis is considered to be one item, and that a very occasional one, in a large and important group, embracing *all foreign substances which find their way into the peri-vascular and peri-alveolar tissue* of the lungs, and by their irritation there, set up lymphatic (adenoid) and connective tissue cell proliferation and its consequences. Of this important group the following are some of the principal constituents:—*a.* The dust of flint, coal, iron, and other substances inhaled by workers in different dusty trades. *b.* The products of inflammatory destruction of tissue. *c.* The products of catarrhal affections. *d.* The débris of blood, and of tissues disintegrated by the extravasation of blood. *e.* Albuminoid tissue disintegrated by peroxidation in true tuberculosis (Dr. Dobell's hypothesis.) *f.* Accumulation of blood débris in the alveoli.

The disintegrated albuminoid tissue is the irritant which sets up that hyperplasia of adenoid tissue and its results, so well described by Portal, Virchow, Sanderson, and Rindfleisch. But whereas they place this hyperplasia first among the pathological changes of tuberculosis, precedence should be given to the peroxidation and disintegration of albuminoid tissue, of which the hyperplastic changes are but the effects, the order of events being:—*a.* Deficiency of fat in the blood. *b.* Peroxidation of albuminoid tissue. *c.* The production of disintegrated albuminoid tissue, the result of peroxidation. *d.* Hyperplasia of adenoid tissue, the result of irritation of the absorbent system engaged in removing the disintegrated tissue.

Whether the disintegrated albuminoid tissue, or the resulting diseased adenoid tissue shall be called "Tubercle" Dr. Dobell thinks of little consequence, so that the distinction in the order of events is borne in mind.—("Med. Chir. Trans.," Vol. lvii.)

A case of *Transfusion of Lamb's Blood in Pulmonary Consumption*, related by the recipient, Dr. Redtel, of Köben.—The author, who had well-marked tubercular consolidation of the left lung and ulceration of the larynx, accompanied by a certain amount of pyrexia and dysphagia, was transfused with lamb's blood by Dr. Hesse, of Nordhausen, on the 1st of July, and he narrates his symptoms after the operation. The apparatus consisted of two glass tubes and an indiarubber pipe filled with cold solution of carbonate of soda. By

means of this blood flowed from the lamb into the median basilar vein of the author for the space of ninety-five seconds. The first sensations were warmth in the arm, formication and redness in the face, and after fifty-five seconds dyspnoea, which became intense. The operation had to be discontinued at the end of ninety-five seconds. Violent pains in the loins succeeded, which, though they diminished in intensity, lasted some hours, then afterwards assumed a pulsatile character, synchronous with each arterial beat, and were assigned by the author to pressure of the distended inferior vena cava and abdominal aorta on the lumbar sympathetic. Forty minutes after the operation a general rigor with slight cyanosis appeared, followed an hour later by a reaction and profuse perspiration, lasting for five hours. Pulse 140, resp. 32. The patient slept without drugs, though badly on account of his cough. On the second day the urine contained a trace of albumen, and five days later the usual eruption of urticaria, accompanied by rather high fever, appeared. This lasted two days, and greatly prostrated him. On the 8th of July some improvement took place in his appetite. The result of the operation appears to have been that no change took place in the symptoms with the exception of the dysphagia. Physical examination showed a considerable diminution of the lung consolidation. Dr. Hesse stated that he regulates the quantity of blood transfused by the patient's appearance and sensations. He has performed the operation thirty-two times with one bad result. He recommends it in cases of phthisis where anæmia is a marked symptom, and especially where the discharge is ushered in by extensive hæmoptysis, accompanied by slight or doubtful physical signs. The pulse is one great indication. If it be full and strong the transfusion is dangerous. Dr. Redtel suggests the use of transfusion of lamb's blood in time of war to supply loss of blood from severe wounds, and stated, in conclusion, that three weeks after the operation he was gradually becoming worse, having reaped no material benefit from it.—("Med. Press and Circ.," Nov. 25, 1874.)

Pneumothorax.—Dr. W. T. Gairdner publishes some observations on pneumothorax.

He gives a narrative of a case illustrating—1. A diagnosis of acute pleurisy, with effusion. 2. Of pneumothorax within a limited area. 3. After a period of very considerable danger from the acute symptoms, a history of great improvement, amounting for the time being to a very complete convalescence, with marked diminution of the signs of pneumothorax. The tubercular origin of the disease can only be affirmed on grounds of probability.

A careful consideration of the facts, learned by pathological experience of pneumothorax, has led the author to attribute a well-marked conservative influence to the pleuritic adhesions which

accompany and often precede the actual formation of tubercles in the lungs, and which in almost all cases precede the softening or ulceration of tuberculous masses. Were this not so, it could hardly be otherwise than extremely common in phthisis for the patient to perish from perforation of the lung. These "little pleurisies" no doubt contribute largely to the symptomatology of pulmonary phthisis by causing the well-known "flying pains" about the shoulders and armpits, and below the clavicles, which patients occasionally insist upon more than the really formidable symptoms of the disease. By far the greatest importance of these minor pleurisies is in relation to prognosis, for it is not too much to say that without them phthisis could hardly ever pass into the third stage, or perhaps even beyond the first, without destroying life.—("Lancet," May 1, 1875.)

Simple Pneumothorax, with Complete Recovery.—Dr. Wilks records a case and says he has never seen but two other examples of the kind, pneumothorax being nearly always associated with well marked phthisis, empyema, or injury. The first was that of a young man who, whilst engaged placarding the walls in his avocation of bill-sticker, suddenly fell to the ground, and was brought to the hospital in an apparently dying state. He was gasping for breath, which was immediately seen to be due to a rupture of the lung, as the left side of the chest was universally tympanitic. Paracentesis was discussed; but, as he soon rallied from his collapsed condition, it was postponed. On the following day, the disturbed circulation had become somewhat restored, and he then made a speedy recovery, without a single symptom denoting any pulmonary or pleuritic disease.

The second case was under the care of the late Dr. Hughes, and occurred in an elderly man who had been the subject of winter cough and shortness of breath. He was suddenly seized with intense difficulty of breathing, which was found to be due to an universal pneumothorax on one side. He was previously well, had no symptoms of any pulmonary disease, and made a complete recovery. Dr. Hughes suggested that he had ruptured a bullous portion of an emphysematous lung.

The following case Dr. Wilks saw, in consultation with Mr. Halls, of Horsleydown and Croydon, who furnished him with the following particulars. Mrs. P., aged thirty, eight months advanced in pregnancy, was quite well up to May 7th, when she thought she took cold from sitting near an open window; but she was not ill enough to seek advice or keep indoors. On the 17th, she was seized with difficulty of breathing, and sent for Mr. Halls. He found her suffering from great distress of breathing; she had complete pneumothorax of the left side. She was continually coughing, which seemed to be of a nervous or spasmodic kind. These symptoms continued, and on the 19th Dr. W. saw her. The breathing was very quick and gasping,

as of impending suffocation. The whole of the left chest was hyper-resonant, and not the slightest breath-sound could be heard. On coughing, no metallic sounds could be detected, or other signs showing a present communication between the lung and pleural cavity. The chest was of normal size. The question of treatment was anxiously discussed. It was considered that, if there had been good evidence of the existence of a hole in the lung, and if at the same time the chest had been bulging, tapping the patient would have been justifiable; for, even had a free communication been made between the chest and the external air, this condition would have been better than one where air was forcibly pumped into the chest, and was exerting a baneful pressure on the heart and surrounding parts. If the ruptured lung had already closed, there arose the question of the propriety of tapping the chest by a valvular trocar or aspirator, so as to pump off the air and allow the compressed air to expand. As, however the dyspnoea was less urgent than at the onset, and the circulation had already partly accommodated itself to the altered circumstances, it was thought better to wait. She was soon afterwards delivered of a healthy child, and made a good convalescence; she went into the country, and when she returned, three months afterwards, was perfectly well.—("Brit. Med. Jour.," Dec. 19, 1874.)

Thoracentesis.—Dr. F. A. Goodridge (Bath) publishes a paper in which a case is given, which adds another to an already numerous list of recorded cases, showing that paracentesis should be employed in the treatment of acute pleurisy much more frequently than heretofore.

Mr. D. M. Williams (of Liverpool) publishes a case of paracentesis thoracis occurring in a man aged fifty-eight. Twenty days after the commencement of his illness the patient was tapped, and 108 ounces of offensive pus removed. Three weeks later the opening made by the trochar was enlarged to an inch and a half in length by means of a bistoury, and the pleural cavity was frequently washed with a weak solution of sulphurous acid. He was discharged from the hospital, after ten weeks, in a fair state of health.—("Brit. Med. Journ.," Dec. 12, 1874.)

Pleuritic Effusion.—Dr. Elizabeth Garrett-Anderson reports a case of pleuritic effusion occurring in a girl, aged nineteen, with a phthisical family history, who had been ill four months. Thoracentesis was performed with Dieulafoy's aspirator; ten ounces of fluid were removed, immediate relief resulted, and the remainder of the fluid was gradually absorbed. The symptoms of hectic disappeared, and the patient left the hospital in good health, with good respiratory sounds to the base of the lung, with the heart restored to its normal position, and with but very slight retraction of the side.—("Brit. Med. Journ.," April 24, 1875.)

Empyema.—Dr. Playfair reports a case occurring in a child seven years of age, of delicate rachitic constitution, in which the method of repeated aspiration advocated by Bouchat was at first attempted. The pus rapidly collected, and eventually threatened to form a spontaneous opening at an unsuitable position. The method of continuous subaqueous drainage was then adopted, and continued with success for a month. Eventually a counter-opening was made for the purpose of facilitating the injection of iodine solutions. The patient made a complete recovery (the resulting deformity being very slight) after three months' treatment from the commencement of the disease.—("Brit. Med. Journ.," Jan. 9, 1875.)

Dr. Gordon, at a meeting of the Dublin Pathological Society, reports a case of *Hæmorrhagic Sarcoma of the Pleura*, combined with extensive pleuritic effusion. The patient, a servant, aged twenty, had been in perfect health till five weeks before she was admitted into hospital, and death took place six weeks afterwards. The growth was found to consist of small spherical granular cells, with a little slender intercellular substance, presenting the character of round-celled sarcoma, extremely vascular, and studded with small extravasations.

The case presented unusual difficulties as regards diagnosis previous to the performance of paracentesis. It was then presumed that the pleuritis must be secondary, for the following reasons:—

1. The colour of the fluid drawn off; this was not serum tinged with blood, but serum with which blood was intimately and permanently blended.

2. Because the relief afforded, although considerable, was not in proportion to the amount of fluid drawn off, which was as much as 90 ounces.

3. Because there was no corresponding change in the physical signs after the removal of large quantities (90, 60, 50, 75 ounces successively) of fluid from the chest.

The age of the patient, the rapidity of the growth, and the hæmorrhagic condition of the pleuritic fluid, were the features most characteristic of the malignant nature of the disease.—("Dublin Journ. of Med. Science," Aug., 1874.)

Cheyne-Stokes Respiration.—Dr. J. Hawtrey Benson, in the "Transactions of the Medical Society of the College of Physicians of Ireland," gives a paper on "*The Cheyne-Stokes Phenomenon*," sometimes spoken of as "ascending and descending respiration." He first alludes to the various theories which have been advanced in explanation of this form of respiration. Dr. Little concluded that its origin is to be found in a mechanical fault in the heart. Dr. Benson accepted this explanation, but added a second requirement, viz., a certain weakened state of the nervous (respiratory) centre, by reason of which the

reflecto-motor impulse is diminished. Professor Traube arrives at a similar conclusion, but he believes that the *only* condition necessary is a diminished excitability of the respiratory centre. A case is then given in which this peculiar kind of respiration was observed. It occurred in a gentleman, aged forty-five, who had been laid up with three attacks of bronchitis, and who had been since subject to attacks of spasmodic asthma. Cerebral symptoms, at first transient, then came on, and culminated in permanent but incomplete left hemiplegia. Albuminuria, anasarca, and death followed.

The heart from the first presented signs of hypertrophy, but there was no murmur. After the hemiplegia had become established, the heart's action began to fail, while the præcordial impulse remained exaggerated the radial pulse became increasingly weak, intermitting, fluttering, and rapid, numbering 130 in the minute. The respiration then became irregular, and in a few days the Cheyne-Stokes phenomenon was well developed. The ascending series lasted about fifteen seconds, the descending series about ten seconds, when an apnoeal period of about twenty seconds succeeded. This kind of breathing continued twenty-seven days, and lasted till within a few hours of the patient's death.

Dr. Benson observes on the case that there was abundant evidence of both cerebral and cardiac lesion, and he calls attention to the fact that the respiratory peculiarity did not appear till the cardiac symptoms had added themselves to the cerebral.

Dr. Henry Kennedy, in commenting on this case, observed that this peculiar kind of respiration did not receive much attention till Dr. Stokes associated it with fatty degeneration of the heart. It had since been noticed in a case where the heart was found to be perfectly healthy, but in which the diaphragm was fatty. This peculiar symptom must therefore be connected with the nervous system generally rather than with any particular organ in the chest. Other phenomena tend to confirm this view. The slow breathing of sleep in health, the quiet breathing of a patient suffering from a severe attack of acute pneumonia whilst asleep contrasted with its rapidity when awake, the existence of what Dr. Graves called cerebral breathing in cases of fever, the variations of respiration in hydrocephalus—at times hurried, at times slow, and again very irregular—these facts tend to prove that a temporarily modified state of the nervous system is quite capable of altering and modifying the breathing. So in the case of fatty heart, the phenomena exists, not because the heart is fatty, but because parts of the nervous system suffer with the heart.—(“Dublin Jour. Med. Science,” Dec., 1874.)

Gangrene of the Lung.—Dr. Nixon, at a meeting of the Dublin Pathological Society, exhibited two specimens of *gangrene of the lung*.

The one presented a good example of diffuse gangrene, the middle

lobe of the right lung being the part affected. There were two perforations of the pleura, which explained the occurrence of pleuritis with effusion and pneumothorax; no evidences of pneumonia. The exciting cause was presumed to be prolonged exposure to cold in an extremely intemperate man, aged twenty-four. The condition was one of "localised necrosis," resulting from local deprivation of blood, hence the absence of any traces of pneumonia after death, and of any symptoms or physical signs of pneumonia during life.

The other was from a man, aged fifty, in whom there was a primary blood lesion. Rapid prostration, vomiting, delirium, and speedy death occurred. The lower extremity of the right upper lobe was found to contain gangrenous detritus. The case resembled some of those described as "Charbon."—("Dublin Jour. Med. Science," March, 1875.)

Dr. Sieveking reports a case of *gangrene of the lung*, occurring in a potman, aged thirty-eight, the symptoms having been of nine months' duration. A large gangrenous cavity was found in the right lower lobe; the middle and upper lobes were in a state of grey hepatisation, and the whole lung impregnated with miliary tubercles. The chief interest of the case consisted in the supervention of gangrene upon pneumonia, and in the comparatively long extension of life (several weeks) after well-marked gangrenous symptoms had manifested themselves.—("Lancet," March 27, 1875.)

Cases of Lung and Heart Diseases.—"Clinical Medicine. Lectures and Essays." By Balthazar Foster, M.D. (Churchill, 1874.)

The second lecture of this volume contains an account of *Cyanosis from patent foramen ovale*. Two cases are given of children, who were the sixth and seventh of the same mother, all of whose children, except one, had been similarly affected. The temperature was always low; it averaged, taken under the tongue, in the one child, 96° , and in the other, $97\frac{1}{2}^{\circ}$. The lowest temperature recorded was 90° in the one, and 92° in the other.

Treatment with cod liver oil did not produce any marked increase of temperature. Chlorate of potash gave more marked benefit. Peroxide of hydrogen, in doses of eight minims to the elder child, who was three years and eight months old, did a great amount of good. The younger of the children died, after symptoms of congestive bronchitis and jaundice had manifested themselves. In this child the foramen ovale was found to be sufficiently patent to admit a large-sized goose quill, and the Eustachian valve was of large size. A systolic murmur had been audible during life, of greatest intensity over the third left costal cartilage at its junction with the sternum, and not audible at the apex. A similar murmur was heard in the case of the elder child.

A third case is reported in which post-mortem examination showed

the absence of any condition capable of producing a murmur, except the patent foramen ovale, in a child who during life had a distinct murmur with the first sound over the heart.

The third lecture contains an account of the use of *Ether in the treatment of Phthisis*. The action of ether introduced into the digestive organs is:—1. To stimulate all the intestinal surface. 2. To stimulate the secretions which are poured into the intestine. 3. To modify and decidedly increase the absorbing power.

Statistics of a number of cases are given in which the ether had been administered in conjunction with cod liver oil, and in almost all cases with a markedly favourable result.

Chapter iv. sums up the use of *Digitalis in Heart Disease*.

Its effects on healthy persons as shown by pulse tracings were found to be:—1. Diminution in the frequency of the heart's beats. 2. Increase in the force of each beat. 3. Increase in the arterial tension; and in cases of irregular action of the heart associated with certain valvular lesions, there was observed what might be called a fourth effect, viz.:—4. The co-ordinating influence of the drug in restoring the regularity of the heart's movements.

In *Aortic Insufficiency* digitalis is believed by Dr. Foster to augment the ill effects of the disease by slowing the action of the heart; it multiplies the effects of the disease by increasing the period of its action.

There is, however, one condition which warrants the use of the drug—that of over compensation; in these cases a few doses will do good.

In *Mitral Stenosis* the auricle requires more time to fill the ventricle, and this is exactly what digitalis will afford, and it is only in the very last stages that the remedy fails.

In *Mitral Insufficiency* the drug corrects any tendency to confused muscular action, and prevents unsteadiness in the action of the papillary muscles. It produces almost magical results, provided that no muscular degeneration exists.

In *Aortic Obstruction* digitalis can do little good: as long as the cardiac muscle is well nourished there is no need for the remedy; when the muscle ceases to be healthy the drug is worse than useless. It is only when the hypertrophy exceeds the limits of compensation that digitalis is useful; then, by slowing the pulse, and steadying the heart's action, its good effects are well seen.

In cases of complex valvular disease, the rule is to treat the predominant lesion, and never to expect good from the use of digitalis when the heart-muscle is unsound. The action of this drug is best tested by its effect on the secretion of urine. The diuretic effect is the result, the outward and visible sign, of the beneficial action; the diuresis indicates a restoration of the normal balance between the

contents of the arteries and veins, an increased arterial tension, and consequently a refilling, under normal pressure, of the empty capillaries of the Malpighian bodies.

In Rupture of the Aortic Valves from accident, Dr. Foster observes that a murmur, diastolic in time, and propagated from the base to the apex of the heart, usually means incompetency of the posterior (or mitral) aortic segment.

A similar murmur, propagated towards the ensiform cartilage, indicates incompetency of either the left coronary or the right coronary segment, by which the regurgitant current is thrown more upon the septum of the ventricles. That segment of the aortic valves, by whose incompetency a murmur is specially carried to the left apex, has no coronary artery above it, and therefore, when it is affected, we should expect the coronary circulation to suffer less than when either of the other segments is imperfect. The coronary arteries, when this segment is torn, would have no regurgitant current running at right angles close to their orifices, and no thickened valve to divert the systolic wave from their mouths, and would suffer only in proportion to the general loss of tension in the aorta. As far, then, as the coronary circulation is concerned, imperfection of the posterior, or mitral, or non-coronary, aortic segment should, *cæteris paribus*, be less serious than a similar imperfection of either of the other segments. Experience indicates that this is the case. Of the three cases mentioned by the author, that patient in whom the non-coronary segment was the injured one, lived the longest time. In the other two cases in which the segments below the coronary arteries were torn, the duration of life after the accident was less.

The conduction of an aortic diastolic murmur to the left apex, in accordance with the above hypothesis, becomes an important prognostic indication.

Chapter ix. contains a series of cases illustrating the use of the sphygmograph and cardiograph in the study of diseases of the heart and great vessels. In one of these a præ-systolic murmur at the base of the heart was presumed during life, and found after death, to be caused by tricuspid stenosis.

Chapter x. gives particulars of a case of *Pleuritic Effusion*, in which *embolism followed thoracentesis* by aspiration. The patient, twenty-six years of age, had complained of dyspnoea for nine months. The right pleura was found to be distended with fluid, and 130 ounces of clear fluid were removed. Forty-eight hours later the right leg became cold, and no pulsation could be detected in the arteries; the following day the left leg became pale, cold, and pulseless. Left pleurisy then came on, gangrene of the limbs rapidly took place, and the patient died twelve days after the performance of paracentesis. After death an embolus was found on each side, which had been caught on the

spur at the angle of division of the common iliac artery, and projected more especially into the external iliac. The spleen and the kidneys contained conical hæmorrhagic infarctions. These emboli were found to originate in thrombosis of the pulmonary veins of the compressed lung.

The renal embolism had been associated with pain in the back and a very scanty secretion of high-coloured, dense urine, which owed its density to a large quantity of urea. There was also an increase in the quantity of albumen, but no hæmaturia was perceptible.

Heart Disease.—Dr. Arthur E. T. Longhurst reports a remarkable case of heart disease, septum ovale open, and inferior vena cava opening into the left auricle; no cyanosis. At the age of nineteen the man had enlisted into the 60th Rifles, having previously served for seven years in the Royal Navy. He died at the age of thirty-six, five months after the first manifestation of cardiac symptoms.

The principal points are summarised as follows:—A. The changes in the anatomy of the heart. (a.) Congenital:—1. Superior vena cava opening into the appendix of the right auricle, which, together with the auricle itself, was extremely dilated. 2. The inferior cava was absent from the right auricle. 3. A cribriform condition of the septum ovale. 4. The extremely large size of the coronary vein. 5. The inferior cava opening into the left auricle, in the position and manner detailed. (b.) Structural, as the result of disease:—1. Adherent pericardium. 2. Dilatation of the cavities of the heart. 3. Thickened and puckered state of the right auriculo-ventricular valve. 4. Thickening of the walls of the left ventricle, which were prolonged for a short distance into—5. A large aneurism of the ventricle. 6. Increase in weight of heart to 2 lb. 1½ oz., whilst the changes from the ordinary course of the adult circulation were as follows:—The blood of the lower half of the body brought by the inferior vena cava, instead of passing into the right auricle direct, was carried first into the left, thence probably through the cribriform septum ovale into the right auricle, establishing thus a double current in the left auricle, composed of—(i.) Venous blood, brought by the inferior cava for passage through the cribriform septum ovale into the right auricle, there to mingle with the stream from the superior cava, passing into the right ventricle, thence into the lungs; and (ii.) Arterial blood, brought from the lungs by the pulmonary veins, for passage into the left ventricle, thence into the aorta. B. The changes in the adult circulation. C. Perfect health and constitutional vigour up to thirty-five years of age. D. The absence of cyanosis. E. Absence of physical signs of congenital change. F. Their comparative insignificance and variability during the last few months of life whilst under observation. G. The determining cause of the aneurism.

A consideration of the above conditions, viz., the changes in the

anatomy of the heart and the changes in the course of the circulation may help us; but for a full and clear explanation of the case we must revert to the conditions of foetal life.

It is evident that a communication between the two auricles, through the septum ovale, was a necessary consequence of the inferior cava opening into the left auricle, otherwise the two currents of venous and arterial blood must have mixed freely.

Again, the points of opening of the vessels and their directions, the alteration in the size of the chambers, etc., would materially influence the currents—*e.g.*, the site of opening of the inferior cava and its direction towards the cribriform septum, and the openings of the pulmonary veins in a direction towards the mitral orifice, might enable the blood currents in the left auricle to pass each other without very greatly commingling. There must, however, have been some slight admixture of venous and arterial blood in the left auricle, although apparently very small from the absence of cyanosis, for, granting that the blood currents from the inferior cava passed into the right auricle through the septum ovale, yet on the contraction of the right auricle some venous blood must have regurgitated through the opening into the left auricle, although the major part of it may have gone into the ventricle in the ordinary course.

We see, therefore, that the peculiarity in the present case is really a remnant of very early foetal life; yet that during that stage of foetal development, the course of the blood was from the right to the left auricle, whilst in the case under consideration, in adult life, the course of the stream was reversed.

That such a condition should have continued into adult life, and that the subject should have enjoyed perfect health and strength, is not the less remarkable, any more than that the course of the circulation thus altered should have flowed so evenly.—("Army Med. Reps." Vol. xiv., 1874.)

Fatty Heart.—Dr. J. H. Green, at a meeting of the Clinical Society of London, read notes of a case of acute *fatty degeneration of the heart* occurring in a girl aged nineteen, presenting certain points of interest.

1. The rapid way in which exhaustion and death had supervened in a case of valvular cardiac disease, in which the cardiac affection was producing but few symptoms, and in which dissolution resulted without the occurrence of any acute inflammatory complication.

2. The extensive fatty metamorphosis of the heart and other muscles found after death. The fatty metamorphosis, which caused the death of the patient, must have been due to imperfect tissue-oxidation resulting from (a) The condition of anæmia induced by the profuse menstruation and inability to assimilate food. (b) The diminished supply of blood to the tissues, resulting from the mitral obstruction

and the smallness of the arteries.—("Brit. Med. Jour.," May 29, 1875.)

Congenital Malformation of the Heart.—Dr. George W. Balfour (Edinburgh), in reporting a case of congenital malformation of the heart, observed in a woman, nineteen years of age, remarks:—"The history of the patient contains within itself all the elements for an accurate diagnosis. The history and symptoms of acquired syphilis, though sufficiently distressing in themselves, are purely episodic in relation to the more serious affection under which this patient labours—an affection which, from its congenital character, has necessarily embittered all her life and must shorten her days. The cyanotic condition of her surface, which has prevailed from birth, and the marked clubbing of all her digital extremities, point with unfailing accuracy to the existence of some congenital central lesion of her circulation. With regard to the production of cyanosis, three views are prevalent: first, there is the theory that it depends upon intermixture of the arterial and venous blood-currents; second, that it is caused by venous congestion, depending upon obstruction to the onward flow of the blood-current, from whatever cause; and, third, that it arises from a combination of the two preceding causes. Clinical experience, however, teaches us that even where the obstruction is very great, as in extreme constriction of the mitral opening—such as the one now before me, which, though somewhat enlarged by long maceration in spirit, only measures five millimetres by eight,—the cyanosis is never so great as in those cases where, from congenital defect, intermixture of the two kinds of blood is possible. Whatever, therefore, may be the explanation—and it is a subject still open to inquiry,—there can be no doubt that, though the absence of great cyanosis does not disprove the structural possibility of intermixture of the blood currents, its presence is a certain proof of its occurrence, and therefore of the presence of those malformations which render it possible. This is confirmed in the present case by the existence of marked clubbing of the digital extremities—a condition which must have a cardiac origin if it extend, as in this case, to all four extremities in any marked degree. The presence of these conditions therefore enables us to conclude with certainty that in this case we have to do with congenital cardiac malformation, involving some condition capable of permitting intermixture of the arterial and venous blood-currents. Now, apart from congenital deficiencies of the septa alone, which to any considerable extent are extremely rare, cause little if any cyanosis, and either give rise to no murmurs or to murmurs quite different in character and propagation from those in this case, we learn from the researches of those pathologists who have studied these malformations that the probability of the original lesion being in the pulmonary artery increases with the age of the sufferer over fifteen. The age of our patient being nine-

teen, there is therefore a very strong probability that her primary lesion has been in the pulmonary artery, and the marked, rough systolic murmur heard in her pulmonary area, and propagated with most distinctness towards the left axilla, renders this certain. The distinct and accurate closure of the pulmonic valves (absence of diastolic murmur) shows us that the murmur probably depends upon a constriction lying above them; as, if they were so malformed as to obstruct the exit of the blood, they would almost certainly be incompetent also. Now, the certain result of constriction of the pulmonary artery to any extent, or for any considerable period, would inevitably be a gradually increasing congestion and dilatation of the right ventricle—lengthened period of action being equivalent to increase of constriction; and of the existence of this in the present case we have ample proof in the loud systolic murmur audible over the right apex, and in the distinct jugular pulsation, which shows that the regurgitation through the tricuspid valve has been so persistent and so great that it has destroyed the valvular action of the venous valves at the root of the neck, so as to convert what must at first have been a mere undulatory movement in the venous current into a distinct pulsatory wave. The occurrence of so great a dilatation of the right ventricle sufficiently explains the absence of an apex beat, because the dilated right ventricle lying in front of the left one, acts as a water cushion or buffer in preventing the apex from reaching the thoracic wall; while the absence of distinct pulsation in the scrobiculus cordis, and at the lowest part of the sternum, proves that the heart is feeble, and that in the right side dilatation is the prevalent lesion.”—(“Lancet,” Sept. 19, 1874.)

Old Cardiac Disease with Sub-acute Rheumatism.—Dr. Shingleton Smith reports the case of a patient admitted into the Bristol Royal Infirmary with sub-acute rheumatism and old cardiac disease. Embolism of the middle cerebral artery occurred whilst the patient was under observation, and rupture of the tendinous chords of the mitral valve, together with advanced fatty degeneration of the heart-fibre, were found after death. The patient was only thirty-four years of age.

Autopsy forty-eight hours after death.—Heart: Left ventricle dilated, and wall thickened; endocardium universally spotted, of a mottled appearance, with minute pale spots and pale streaks scattered about uniformly; muscular tissue pale to a depth of about two lines, but healthy towards the surface of the heart. Two or three white patches were visible on the surface of the heart, but there was no fresh lymph and no excess of fluid in the pericardium. The aortic and mitral valves were both covered with fibrinous vegetations, each semilunar valve having a mass attached to it which would project considerably towards the centre of the artery, and not very firmly

adhering to the valve. Several of the chordæ tendinæ of the mitral valve were ruptured, the broken ends lying free and covered with vegetations. All the chords were pale-looking, many of them atrophied and beaded with vegetation. Both lungs were much engorged, the right upper lobe consolidated, and very slightly crepitant. The liver was nutmegged. The spleen was much enlarged and soft, but no embolic patches were seen. The kidneys were enlarged, cones red, cortex pale, surface smooth; but one kidney contained a large triangular-shaped cicatrix, the remains of an old embolic patch.—Brain: The middle cerebral artery presented nothing abnormal in the first part of its course, but on separating the convolutions bordering the fissure of Sylvius on the left side, the divisions of the middle cerebral artery were found to be occluded, and the convolutions supplied by these vessels in a state of red softening. On slitting up the vessel, it was evident that an embolus had been arrested at the point of division of the main artery, and that subsequent coagulation had taken place on the distal side in the vessels which had been deprived of their blood-supply. The coagulum at the point of division was very firm and pale, and contained in its centre a mass of cretaceous matter; it was surrounded by some darker-coloured fibrin, and was not firmly adherent to the walls of the vessel. Beyond this point the vessels were occupied by recently-formed fibrinous coagulum. The convolutions of the outer part of the middle lobe of the brain were in a state of disintegration, forming a red, almost a diffuent mass, in which broken-up nerve-fibres and oil-globules were seen by the microscope, but no inflammatory products were noticed. The muscular tissue of the heart presented under the microscope the appearance of advanced fatty degeneration of the fibres themselves. This was not uniform, but there were minute spots scattered about very thickly, in which no trace of striæ could be detected, but in which the sarcolemma was filled with oil-globules of different sizes, the shape of the fibre being still preserved, whilst the muscular structure itself had entirely vanished. In some fibres the oil-globules were of large size, occupying the whole width of the fibre, but in others minute rows of globules corresponding with the fibrillæ could be traced lying side by side. In the more healthy parts streaks of granules could be seen running longitudinally in the fibrillæ, but the tissue was for the most part healthy, excepting at the spots which were disseminated so freely in all parts of the inner layers of the heart's muscles. The fibres presented well-marked longitudinal fibrillation, and the transverse striæ were very indistinct. There was no appearance of any inflammatory or other exudation between or amongst the fibres, and no development of fat either on the surface or within the elements of the heart's wall, excepting inside the sarcolemma of the fibres themselves. The coro-

nary arteries were not occluded in any way, and did not present anything abnormal in their appearance.—(*"Lancet,"* Dec. 19, 1874.)

Tapping of the Right Ventricle.—Dr. George Evans, at a meeting of the Clinical Society of London, gave particulars of a case of dilated heart from valvular lesion, in which *the right ventricle was tapped* by error, not only without harm, but with relief of symptoms. The patient, aged twenty-seven, was suffering from acute rheumatism, and heart-disease resulting from a former attack. A fine trochar and canula was introduced by Mr. Hulke to the depth of about half an inch, in the fourth interspace, about half an inch to the left of the sternum. A gush of dark blood followed the removal of the trochar, and the canula was felt to be moved in accordance with the action of the heart. The canula was almost immediately withdrawn, not more than about a drachm of blood having been removed. Death took place four weeks afterwards, but no trace of a cicatrix could be found in the substance of the heart.—(*"Brit. Med. Jour.,"* May 29, 1875.)

Aspiration in Pericarditis.—Dr. Harvey (Birmingham) reports a case of pericarditis with copious effusion, in which aspiration was performed with immediate relief and ultimate recovery. The patient, aged twenty, had been ill fourteen days with acute rheumatism, with a history of cardiac disorder at a former period. The needle was introduced in the space between the fourth and fifth ribs, two inches to the left of the middle line. Fourteen ounces of blood-tinged fluid were removed.—(*"Lancet,"* Dec. 19, 1874.)

Paracentesis in a case of Pericarditis, in Acute Rheumatism.—Dr. Shingleton Smith reports a case of acute rheumatism with pericarditis, in which sudden and copious effusion into the pericardium occurred, for which paracentesis was performed with immediate relief and ultimate recovery. The patient, a plasterer, was twenty-five years of age. The quantity of fluid removed was ten ounces.—(*"Lancet,"* Aug. 22, 1874.)

Extra-pericardial Creak caused by a Tongue of Lung-Substance.—Dr. Nixon, at a meeting of the Pathological Society of Dublin, presented the thoracic viscera of a man, aged sixty-four, who had suffered from renal dropsy. The urine contained blood, much albumen, and granular tube-casts. He was admitted to hospital with general bronchitic *râles*, increased precordial dulness, and a soft post-systolic murmur at the seat of cardiac impulse. This murmur altered in intensity from time to time, and was not audible in the axilla or posteriorly. It disappeared after exercise. Subsequently, a dry creaking sound, most audible at the end of expiration, was observed. It ceased after coughing. The necropsy revealed excessive fatty degeneration of the kidneys. But the most interesting pathological condition was the existence of a tongue of lung-tissue on the left side, which overlapped

the pericardium, and clearly gave rise to the dry creaking sound by the tilting of the pericardium against it, when filled with viscid mucus, with every impulse of the heart. Dr. Nixon said that a similar sound had been described in the same situation as being due—(1) to the stretching of bands of lymph in pleuritis from the lung to the pericardium (Addison); (2) to the pressure of a consolidated lung in tuberculosis; and (3) to the existence of cavities with thick walls (Austin Flint).—("Brit. Med. Jour.," Jan. 30, 1875.)

Cardiac Hyperæsthesia.—Dr. Henry Moon, of Brighton, reports a case of cardiac hyperæsthesia. The patient, aged thirty-four, complained of palpitation, cardiac pain, and dyspnœa. The pulse was over 200 in the minute. The contractions of the heart were abnormally sharp and vivid, the organ seeming to spring up with a quick forcible leap against the ribs; the feebleness of the pulse, however, showed how ineffectual the apparently forcible contractions of the heart were. The patient improved rapidly under digitalis and ammonia. Within a week the pulse was 80, and she left the hospital well, a fortnight after admission.

The sudden return of the heart to healthy action, and the paroxysmal character of the disorder, together with the tenour of the associated symptoms, go to show that the disease belongs to the class of neuroses.—("Brit. Med. Jour.," Dec. 5, 1874.)

Galvano-puncture in Aneurism of the left Subclavian Artery.—Mr. Arthur Fergusson McGill, (Leeds), reports a case of aneurism of the left subclavian artery, treated with partial success by repeated galvano-puncture, and he remarks on the practice as follows:—

1. It is advantageous to give the patient chloroform before commencing the operation, as, without it, it is impossible to prolong the operation for a sufficient time.
2. The needles should be well insulated to avoid burning the skin round the one connected with the negative pole.
3. The current should be passed for at least two hours; very probably twice that time would be advantageous.
4. The operation by the insertion of needles connected with the negative pole had, in his hands, no effect whatever.
5. The patient should be kept quiet in bed after the galvano-puncture. Unfortunately in his case she was obliged to get up soon after, and never stayed in bed for more than three days. More prolonged rest might have led to a more satisfactory result.—("Lancet," July 4, 1874.)

Pre-systolic Murmur.—Dr. Sansom, at a meeting of the Medical Society of London, February 8th, 1875, showed a boy, aged nine, who had a well marked pre-systolic murmur. The patient had a history of rheumatism in his family, but had never suffered from rheumatism himself. He had been short of breath from birth. The marked localisation of the murmur and of the accompanying thrill were

pointed out. By fixing a light lever, made of a pin and tissue paper, to the chest, with adhesive plaster, and comparing the movement with that of a similar lever fixed over the point of the apex beat, it could be seen that the auricular preceded the ventricular contraction: the auricular contraction was timed as instantaneous with the murmur, and thus the auricular origin of the sound could be demonstrated.—(*"Lancet,"* Feb. 13, 1875.)

Rapid Action of the Heart.—Dr. Farquharson gave particulars, at a meeting of the Medical Society of London, March 1st, 1875, of a case of unusually rapid action of the heart. The man complained of palpitation, and was found to have aortic valvular disease. After twenty-five days treatment by digitalis, he was suddenly seized with most violent and rapid action of the heart, the pulse being 216, which continued for two hours and a-half, when, after a few irregular beats and a pause, the pulsations had fallen to 104.—(*"Lancet,"* March 13, 1875.)

Unusually rapid Pulse.—Dr. Brisbane reports a case of acute rheumatism, followed three weeks later by an attack of pleurisy, in which the pulse, for four days in succession, was found to be over 180, and so feeble that it could not be counted without difficulty, the patient at the same time being free from pain or discomfort, and wishing to be allowed to get up. There was old mitral disease, which the patient (an adult man) believed to be congenital. He was treated with tincture of digitalis, in half-drachm doses, every four hours, and the pulse fell on successive days to 140, 100, and 90, when muriate of iron, with ten minims of tinct. digitalis were given three times a day, and within a week the patient was able to attend to his business.—(*"Lancet,"* Feb. 6, 1875.)

Slow Pulse.—Dr. Bird, at a meeting of the Manchester Medical Society, exhibited a heart, taken from a man, in whom, during life, the pulse was very slow and variable. For some time before death it was reduced to sixteen beats in the minute. The accompanying dyspnoea was most severe when the pulse was low. The second sound of the heart was inaudible. The heart showed very extensive calcification of the aortic valves, with dilated and atheromatous aorta, and fatty degeneration of the muscular substance.—(*"Brit. Med. Jour.,"* Dec. 19, 1874.)

Mr. Pugin Thornton gave details of a case of *exceeding infrequency of the pulse* at a meeting of the Clinical Society of London, Feb. 26, 1875. The patient, an anæmic woman, aged twenty-nine, was suffering from syphilitic laryngitis, for which tracheotomy was performed. The rate of her pulse was at that time (Nov., 1872) 40. Four weeks later it was found to be only 16. In January, 1873, it was 20. From this date till April, 1874, it was 40. There was no evidence of cardiac disease.

In the discussion which followed, Dr. Hewan gave some interesting details of his own case. Twenty-one years ago, his pulse fell from 72 to 55; from that date it decreased in frequency, and ten years ago it was but 24. During an attack of acute rheumatism his pulse rose to 32. Its present rate is 28. His general health is good, and he is capable of great physical exertion.—(“Lancet,” March 6, 1875.)

Cyanosis.—Dr. Leech brought before the Manchester Medical Society, a young man, aged twenty-four, with cyanosis, which had existed since he was five months old. He was subject to attacks of syncope and dyspnoea, but was not precluded from following an occupation. He had hypertrophy of the lips and congestion of the nose. There was hypertrophy of the left side of the heart, with a *bruit* which was heard most distinctly in the fourth left intercostal space near the sternum. The *bruit* was very limited, and was intensified during an inspiratory act. In addition, the patient had abnormality of the ribs on the left side. Dr. Leech believed a communication between the two ventricles to exist. In conjunction with the above case, Dr. Leech also showed a case of cyanosis which had been before the Society at a previous meeting, and in which there was pulmonary stenosis.—(“Brit. Med. Jour.” Dec. 12, 1874.)

Angina Pectoris.—Dr. John Wilson describes a case of angina pectoris occurring in a farm servant, aged twenty-three, who died suddenly after leaving a warm room on a cold January night. The man had complained of intense pain in the breast striking through to the back, which had compelled him to stand still and hold his breath; this was on the day before his death. His health had been perfect up to that time. At the post-mortem examination no disease was found; the heart was flaccid, the cavities empty, and all the valves were healthy. Dr. Wilson suggests that the sudden change of temperature may have caused a reflux of blood from the external surface of the body to the heart and lungs, and so induced a fatal attack of angina at an almost unprecedentedly early age.—(“Edinburgh Med. Jour.” Sept., 1874.)

Mediastinal Tumour.—Dr. J. Burney Yeo reports a case of *mediastinal tumour*, leading to occlusion of the right bronchus, and consequent collapse of the right lung and cardiac displacement. The patient was fifty-three years of age, and his illness was of nine months' duration. The tumour, about the size of a large orange, was found to occupy the posterior and middle mediastinum, pushing down the base of the heart. A small process from it had grown into the right bronchus so as to almost completely occlude it. The tumour enclosed in its substance many black bronchial glands. Three or four rounded masses (secondary growths) were found in the apex of the right lung. The

tumour presented the microscopic characters of medullary cancer.— (“Brit. Med. Jour.,” March 13, 1875.)

Dr. Greenhow relates a case of mediastinal tumour simulating chronic phthisis.

The patient, aged forty-two, had been complaining for three months. There were symptoms of general bronchitis, and the physical signs resembled those of chronic phthisis. There was an entire absence of pressure-signs even up to the date of death.

At the autopsy a large lymphadenomatous tumour was found occupying the posterior mediastinum, and completely surrounding the root of the right lung. The growth invaded the substance of the right lung, and the liver contained two yellow coloured nodules of the size of peas.— (“Med. Times and Gaz.,” Nov. 21, 1874.)

Mediastinal Sarcoma, simulating “Callous Mediastino-Pericarditis.”— In the “British Medical Journal” for September 5th, 1874, Dr. Clifford Allbutt has recorded a case of mediastinal sarcoma, which in its clinical features and post-mortem appearances presented some resemblance to the cases of “callous mediastino-pericarditis,” described by Kussmaul in the “Berliner Klinische Wochenschrift,” Nos. 37, 38, 39, 1873, and of which an abstract was given in the “London Medical Record,” Dec. 17th, 1873. The patient was a girl, aged sixteen, of delicate appearance, who had had no previous illness, save an attack of small-pox when young. A sister had died of phthisis, aged twenty-one, but her parents were alive and well. The girl caught a cold on “Shrove Tuesday,” which was followed by cough and shortness of breathing. For a month previously to her admission she could not lie down on account of dyspnoea and palpitation. She had had no pain. On admission the superficial veins of the neck were prominent, and she had the aspect “of one suffering under the pressure of an acute disease; she had the præcordial anxiety, the pallor, the distress and the fear of movement which are often seen in pericardial effusion.” There was considerable dulness in the middle of the chest, but the distribution of the dulness was not like that of pericardial effusions. “Taking the base line of dulness from the lower edge of the liver and heart, it extended upwards all over the front of the chest, leaving only a triangle of resonance at the upper and outer corners. The two outer thirds of each clavicle might be taken as the upper side of an equilateral triangle of comparative resonance on each side. All beside was dull, and the dulness reached about an inch beyond the mammary line on each side. On the left side of the chest, however, there was another district of dulness continuous with the former, and clearly corresponding to a small pleuritic effusion. The pulse was small, rapid, irregular, and sometimes intermittent. The respiration was very shallow and frequent; so much so, that it was impossible to say

whether inspiration had any effect upon the fulness of the jugulars or upon the radial pulse." The left pleura was tapped, and fourteen ounces of clear fluid withdrawn by the aspirator. The patient, however, died fifteen minutes after the operation. The "paradoxical pulse" was not noticed, on account of early death. At the necropsy the following were the appearances: "There was enormous dilatation and thickening of the pericardium, due to a firm yellowish homogeneous-looking growth, occupying the anterior mediastinum and reaching above to the thyroid on the left, and to the diaphragm below on the right. The chief mass of the tumour was situated in front of and around the base of the heart, completely embedding the great vessels at the root of the neck and the arch of the aorta, and closely adherent to them, but not seemingly contracting their calibre. The tumour blended insensibly with the pericardium. In front it had evidently been adherent to the sternum and costal cartilages. Below, the adherent diaphragm showed several nodules of similar structure. The enlarged pericardium formed a nearly globular sac, flattened below where it rested upon the diaphragm, and about eight inches across. Its lining was more opaque than natural. The heart was small, flabby, and pale. Along its anterior borders and near the base were several nodules of the new growth, on incision evidently infiltrating the muscular tissue. The lungs, which had evidently been laterally displaced, were small and almost airless, with the exception of their apices. Around their roots, and extending along the vessels and bronchi, and the edges of the lobes for a short and variable distance, was the same sort of tissue as in the mediastinum. The microscopic appearance of the growth was that of small round cells, with no fibrous stroma, and very little intercellular substance. A section from a nodule upon the heart showed the same material infiltrating the muscular fibres; and in one from the root of the lung, the pulmonary tissue was infiltrated with similar small cells."

Dr. Allbutt's case, in the opinion of the reporter, (Dr. J. B. Bradbury,) corresponds pretty closely with the class of cases designated by the terms lymphadenoma, lymphosarcoma, or Hodgkin's disease. A very similar case to his is minutely described by Dr. Risdon Bennett, at p. 148 of his book "On Intrathoracic Growths," and one not unlike it has come under the notice of the reporter, and is published in the "British Medical Journal" for September 19th, 1874. Dr. Allbutt has omitted to mention the condition of the lymphatic glands, spleen, etc., in his case, and it would be interesting to know the state of these organs. In the reporter's case there was enlargement of the spleen and mesenteric glands, in addition to the mediastinal growth. The case was also complicated by bloody pleurisy.—("London Med. Rec.," Sept. 23, 1874.)

Pulmonary and Cardiac Complications of Abdominal Tumours.—Dr. Wm. Henry Day, in a paper read before the Royal Medical and Chirurgical Society, entitled "Practical Observations on the Pulmonary and Cardiac Complications of Abdominal Tumours," describes some of the effects of solid or cystic abdominal tumours, and of large collections of fluid in the peritoneal cavity, in displacing the thoracic organs, and inducing a long series of constitutional and local symptoms. He showed the importance of ascertaining the condition of the lungs and heart before deciding upon the removal of fluid or of tumours from the abdominal cavity. He examined the effects of rapid and of gradually increasing pressure upon the thorax, and also the results of the rapid removal of pressure by tapping, or by the removal of a tumour; advocating the gradual removal of pressure whenever practicable, and giving several instances to prove the utility of venesection in cases where portions of lung which had been compressed have rapidly expanded, and congestions or hepatisation have followed. He also gave instances in which organic diseases of the lung have been relieved after the pressure which aggravated the symptoms had been removed. He compared the pulmonary symptoms which often follow operations on the abdomen with the more ordinary forms of bronchitis or pneumonia, and gave practical details of treatment in the different classes of cases. He concluded by endeavouring to enforce the two following conclusions:—

1. That the surgeon who treats cases of abdominal distension must not overlook the pulmonary and cardiac complications which are due to compression or displacement.

2. That the success of operations for the removal of abdominal tumours may be increased or diminished by careful examination of the state of the chest before operation, and by equally careful attention after operation, not only to the parts involved in the surgical proceedings, but also to those changes in the blood and in its circulation through the heart and lungs, and to the effects on these organs, which are due to sudden removal of pressure alone, or to other causes of considerable elevation in the temperature of the blood.—("Med. Times and Gaz.," May 22, 1875.)

Pulsation of the Liver from Circulatory Disorders.—Dr. Frederick Taylor publishes a paper on *pulsation of the liver* from regurgitation through the tricuspid valve into the hepatic veins. Five cases are reported in which this condition was noticed. The symptoms are described in one case as follows:—

Though the action of the heart is scarcely at all heaving, there is very marked pulsation in the epigastrium, and over the whole surface of the liver, reaching as it does down to the level of the umbilicus. If the hands be placed on the surface of the liver at two points far apart, the whole organ is felt to enlarge between them, driving them

still further asunder. This is perhaps best felt when one hand is placed near the umbilicus and a little to its left, and the other on the right side of the abdomen in the axillary line. But the same expansion is felt when one is placed on the left lobe of the liver three inches to the left of the umbilicus, and just under the left costal cartilages, while the other is placed under the tip of the right twelfth rib. There is well-marked pulsation in the external jugular veins, and both this and the hepatic pulsation are distinctly synchronous with the impulse of the heart.

Epigastric Pulsation is of frequent occurrence in various disorders of the circulatory system. It is in many cases due to the lowered position and altered condition of the right ventricle. The impulse may be a mere shock or wave communicated to the walls of the abdomen by the enlarged right heart, or it may be more directly transmitted through the medium of the left lobe of the liver.

The aorta itself may give rise to some beating in this region, especially when it is overlaid by a solid mass.

Regurgitation into the trunk of the vena cava inferior has been observed by Geigel to give rise to pulsation, visible and palpable, to the right of the umbilicus; and Seidel speaks of a pulsation in the epi- and meso-gastric regions to the right of the navel.

The characters of hepatic pulsation distinguish it from any of those mentioned. These characters are, firstly, the extensive area over which pulsation can be felt, namely, from near the left costal cartilages to the right lumbar region; and secondly, the exact correspondence of this pulsation to the surface of the enlarged liver. The sphygmographic tracings taken over the pulsating area tend to bear out the view that the pulsation is of hepatic venous origin.

Well marked systolic pulsation of the liver may be regarded as one of the most certain signs of regurgitation through the tricuspid orifice, and its occurrence would at once confirm the diagnosis of that lesion, founded on jugular pulse and systolic murmur over the tricuspid orifice.—(*"Guy's Hosp. Rep.,"* Vol. xx., 1875.)

Psoas Abscess ascending into the Pleura.—Mr. W. Rivington, writing on the varieties of psoas abscess, calls attention to a comparatively rare result of this disease. He says: "There is another important direction in which the matter tends—that is, upwards between the pillars of the diaphragm into one or other pleura. This formidable complication has been recorded ten times. In one of Dr. Bowditch's cases it led to successful paracentesis of the thorax, the position of the thigh and buttock having induced Dr. Bowditch to diagnose what had happened. Martini also performed thoracentesis for this condition, but without success.—(*"Lancet,"* Oct. 31, 1874.)

Thoracic Tumours.—Dr. Peacock reports a case of aneurism of the arch of the aorta, in a man, aged thirty-one, the first symptom of

which was loss of voice. The patient was suddenly seized with extreme dyspnoea, became rapidly cyanotic, and died six months from the date of the first symptom.

At the autopsy a small aneurism was found in the concavity of the arch of the aorta, compressing the left bronchus and the left recurrent laryngeal nerve.

Dr. Ward reports a case of pulsating tumour of the chest, in a man, aged thirty-six. The application of an ice-bag over the tumour, and the administration of digitalis with iron, were followed by disappearance of the evidences of tumour (pulsation and dulness on percussion), as well as cessation of pain and dyspnoea. The patient returned to his work, but died suddenly from hæmoptysis two months after leaving the hospital.

Dr. Ward reports a case of malignant tumour in the mediastinum, causing cyanosis and severe dyspnoea. The symptoms were twice much relieved by the abstraction of ten ounces of blood from the arm. Death took place two months from the appearance of first symptoms. — (“Med. Times and Gaz.,” Sept. 26, Oct. 31, 1874.)

SURGERY.

Laryngeal Growths and their Treatment.—Mr. Lennox Browne, in a paper read before the Medical Society of London, on the treatment of new formations of benign character in the larynx, maintains that there is not, so commonly as is supposed, any operative procedure for the treatment of these cases in which “no chance of danger is incurred.” He submits for consideration the following propositions:—

1. Attempts at removal of growths from within the larynx are not in themselves so innocuous as is generally believed, but, on the contrary, direct injury of healthy parts, leading to fatal results, is by no means of infrequent occurrence.

2. The functional symptoms occasioned by benign growths in the larynx are, in a larger proportion of cases, not sufficiently grave to warrant instrumental interference.

3. Many of these new formations will disappear or be reduced by appropriate local and constitutional medical treatment, especially when of recent occurrence.

4. Recurrence of laryngeal growths after removal per vias naturales is much more frequent than is generally supposed.

5. While primary malignant or cancerous growths are of extremely rare occurrence within the larynx itself, benign growths frequently assume a malignant, or even cancerous character, by the irritation produced by attempts at removal.

6. The instruments now most generally in use are far more dangerous than those formerly employed. Injury to healthy structures,

and consequently perichondritis, have not infrequently resulted from the use of unguarded instruments.

7. The cardinal law, that "an extra-laryngeal method ought never to be adopted unless there be danger to life from suffocation or dysphagia," should be applied with equal force to intra-laryngeal operations.—("Brit. Med. Jour.," May 8, 1875.)

Foreign Bodies in the Trachea and Bronchus.—Mr. Thomas Annandale reports two cases of foreign bodies in the air-passages:—

The first is that of a child, eleven months old, who had attempted to swallow part of the backbone of a herring. Tracheotomy was performed, the forefinger was introduced into the mouth so as to press down the foreign body, and to disentangle its sharp processes, which pointed upwards, and it was then successfully seized by the forceps introduced through the wound, and was drawn up from below whole, and without injury to the surrounding textures.

The second case is that of a child, aged seven years, who had been seen to swallow a glass bead five days previously. Tracheotomy and inversion of the body were tried, but without success. The trachea was then completely closed below the wound by inserting the flat handle of a knife and turning it round, so that it lay across the canal, and prevented any air entering the lungs. Violent respiratory efforts ensued; the bead was thus dislodged from the bronchus, rushed up the trachea, struck against the knife-handle, and was then speedily extracted.—("Med. Times and Gaz.," Feb. 27, 1875.)

Mr. Marcus Beck reports a case of foreign body (plum stone) in the left bronchus. The foreign body, which was at first arrested in the larynx, became dislodged, passed down the trachea, and apparently fixed itself in the left bronchus. Although the latter is a less common situation for foreign bodies than the right bronchus, it is not so rare as is frequently imagined. Professor Gross has analysed twenty-one cases in which death took place without operation and without expulsion of the foreign body, and in eleven cases the foreign substance was in the right bronchial tube, and not once in the left bronchus. But in forty-two cases subjected to operation or general treatment, the foreign body "was situated twice positively, and eleven times probably, in the right bronchial tube; four times certainly, and four times probably, in the left bronchial tube." In the analysis of 166 cases by M. Bourdillat, the foreign body was situated twenty-six times in the right bronchus, and fifteen times in the left bronchus. In the following case the physical examination of the chest showed almost beyond doubt that the plum-stone was arrested in the left bronchial tube. The movements on the left side of the chest were greatly diminished, the percussion-note impaired, and the breath-sound weak and distant. In a short time there were evident signs of collapse of the whole of the left lung, accompanied by a stridulous sound

over the left bronchial tube. The explanation of this condition is that during the inspiratory act the extraneous body was driven into the bronchial tube, so as to prevent the passage of air into the finer bronchi, although it did not prevent the expulsion of air during expiration. The mischievous effects were aggravated as time went on, owing to the increase in size of the offending body by the accumulation upon it of thickened mucus. The speedy expulsion of the body after tracheotomy and the passage of the wire down the trachea, by which a violent fit of coughing was induced, is worthy of notice, and is full of encouragement.—(*"Lancet,"* Dec. 5, 1874.)

Tracheotomy in Children.—Mr. H. G. Howse publishes a paper on the operation of tracheotomy in childhood, in which six cases are reported, five of which were successful in saving the patients' lives. The fatal case was one of laryngo-tracheo-bronchitis, and the child finally died from capillary bronchitis. Of the five successful cases one was a scald of the glottis from drinking boiling water; three were cases of croup or diphtheria, and one was a case of chronic inflammation of the larynx of a croupous or syphilitic character in an excessively cachectic child.—(*"Guy's Hosp. Rep.,"* Vol. xx., 1875.)

Paracentesis Thoracis.—Dr. Barnes (Carlisle), at a meeting of the Border Counties Branch, read a paper on paracentesis of the chest. The cases given illustrated the advantages of the operation in simple acute pleurisy with effusion, in large effusions into the pleural cavity occurring as a complication of enteric fever, in chronic pleuritic effusions, and in empyema. The dangers of the operation were considered to be over-stated, and the fact insisted on that it is better to operate soon than to leave effusions in the pleural cavity, and allow the formation of false membranes to bind down the lung.—(*"Brit. Med. Jour.,"* May 29, 1875.)

MATERIA MEDICA AND THERAPEUTICS.

Diuretic Action of Digitalis.—Dr. Brunton, and Mr. Henry Power, in a paper on the diuretic action of digitalis, contest the assumption that the diuretic action of this drug is due exclusively to its power of increasing the blood-pressure in the arterial system, thus causing a difference in pressure between the blood in the renal glomeruli and the urine in the urinary tubules. They found, in some experiments on the dog, that when the blood pressure rose the secretion of urine was greatly diminished, and that secretion became re-established when the blood-pressure fell. The secretion was least when the blood-pressure was highest, and most copious when the tension had fallen below the normal.

They suggest that digitalis probably stimulates the vaso-motor nerves generally, but affects those of the kidney more powerfully than

those of other parts of the body : it thus causes moderate contraction of the systemic vessels, raising the blood-pressure in them ; but, at the same time, produces excessive contraction of the renal vessels, so as to stop the circulation in the kidneys, and arrest the secretion of urine. The vessels afterwards relax, the blood-pressure falls, but the renal arteries dilate more than the systemic vessels : the pressure within the glomeruli will then be increased, although the tension in the arterial system generally is low.—(“Proc. Royal Soc.,” Vol. xxii., No. 153.)

Jaborandi.—Dr. Sydney Ringer, and Mr. W. Murrell, report the results of a series of experiments on jaborandi. The drug was given to ninety-four persons. Sixty-eight of these took it at their own homes at bed-time, with the following results : in fifty-nine instances both perspiration and salivation occurred ; in five, perspiration without salivation ; in four, salivation without perspiration. Thirteen complained of pain over the pubes, with a strong desire to pass urine ; thirty-one experienced pain in the head, with giddiness and dulness.

On seventeen occasions, the drug was given at nine o'clock in the evening, in a warm room, before a large fire. Of these cases, both perspiration and salivation occurred in eleven ; in three cases only did the drug produce no effect.

The observations were repeated several times on certain individuals ; and it was found that the effects of the drug vary considerably, not only in different persons, but even in the same.—(“Brit. Med. Jour.,” April 24, 1875.)

Iodide of Potassium, its therapeutic value.—J. Mitchell Wilson, M.B., writes that he has found unusual results from the administration of this drug in a case of asthma. The case was one in which asthma and eczema seemed to act as safety-valves for a system having a strong rheumatic diathesis. The iodide seemed to act by promoting the action of the kidneys ; most probably by its primary power of causing the absorption of additional waste nitrogenous matters into the blood, which are eliminated partly as uric acid.

Dr. James Lawrie (Glasgow), considers that the one distinct and indisputable action of the drug is that of stimulating the mucous membranes, and thereby of promoting secretion. It therefore relieves in chronic bronchitis, by encouraging expectoration. In asthma it acts also as a sedative, and relieves bronchial spasm. In all the various manifestations of struma, it acts by stimulating the mucous membrane of the stomach and duodenum to increased secretion.—(“Brit. Med. Jour.,” Jan. 2, 1875.)

Free Phosphorus in Medicine.—By Dr. J. Ashburton Thompson (Lewis, 1874.)—Cod liver oil takes up phosphorus freely enough for pharmaceutical purposes. This solution may be prepared without the

assistance of heat. One-twelfth of a grain to the drachm forms a convenient strength.

M. Personne has given the result of twelve analyses of eleven specimens of oil, and he finds that—1. All oils of cod-liver do not yield phosphorus. 2. It exists in some only in the form of earthy phosphates. 3. Its presence in this form is due to an imperfect method of preparation.

To one patient Dr. Thompson administered the full dose of one-twelfth of a grain three times a day dissolved in cod-liver oil, and continued it for eleven days, before the patient (a delicate phthisical girl) manifested any but beneficial results; on the twelfth day slight diarrhoea set in. He considers one-twelfth of a grain to be a full, but perfectly safe dose in this form, and the smallest quantity to be employed in cases where a speedy effect is desired. For administration in phthisis, or in chronic diseases, a much smaller quantity will probably be found sufficient—about one fiftieth of a grain.

Many of the restrictions to the use of this drug first laid down by von Löbel, and afterwards endorsed by Lobstein, are considered by the author to be fanciful and unnecessary. The prohibition in cases of dyspepsia need not be obeyed without discrimination. It is as well tolerated by patients suffering from phthisis as by others; but it is wisely forbidden in plethoric cases; a reason against its use in these is the excitement of the circulation to which it gives rise in full doses, and which might, probably, conduce to apoplexy. This reason may also hold good of some persons inclined to hæmorrhage—that is, first, if the hæmorrhage is attendant on plethora; or secondly, if it occur in consequence of a diseased condition of the vessels, which are thereby unfitted to stand the extra strain thrown on them by agitation of the circulation. This latter, perhaps, affords one reason why von Löbel forbids phosphorus in cases of phthisis, nor would our author venture to administer it in a stimulant dose to persons in whom hæmoptysis has occurred or may be anticipated. But from what is known of the action of this remedy, which differs considerably according as the dose is large or small, it may be given even in these cases without apprehension, in such small quantities as may be regarded simply as nutritive or tonic.

Three cases of phthisis are reported, in which neuralgia was a prominent symptom, and in which phosphorus was given in doses up to one-twelfth of a grain with good effect. Great stress is laid by Dr. Thompson on the importance of using *animal* and avoiding *vegetable* oils, as menstrua for phosphorus.

"*Materia Medica and Therapeutics.—Vegetable Kingdom.*"—By Charles D. F. Phillips, M.D. (Churchill, 1874.)

Aconitum Napellus.—Dr. Phillips says that the most important

physiological action of this drug is its power of diminishing excessive action of the heart. It also relieves pain by partially and temporarily paralysing the sensory nerves. Fatal doses of the drug—

1. Produce death from asphyxia by cardiac paralysis.
2. They in the first place stimulate the medulla oblongata.
3. This stimulation affects the vagi, and is succeeded by paralysis of these nerves.
4. The cerebro-spinal motor nerves are paralysed, and voluntary movements are abolished, the muscular substance remaining unaffected.
5. Finally, the reflex action of the spinal cord and the conductivity of the afferent nerves remain unaffected; while the conductivity of the sympathetic nerves is stimulated.

The drug is indicated in the early stage of pneumonia, and in all inflammations of serous membranes before the exudation has passed the plastic stage, especially in pleurisy, pericarditis, etc. When given in the early stages of inflammatory fever, it not only abates the frequency of the heart's action, but reduces the temperature to its normal standard. The author alludes to nine cases of pneumonia treated with aconite: in these cases the fever in no instance lasted longer than six days, reckoning from the commencement of the rigors. In every one of the cases, moreover, in from three to six days after the temperature had fallen to 99° or below, the lungs became almost natural. In none of them did the pulse fall to the normal standard without the temperature likewise falling to at least 99° , but in several instances the pulse remained high, and the temperature sank to below 99° , making it very probable that the aconite had done its required work. In eleven cases of pneumonia in the second or consolidated stage, treated with aconite, the drug seemed to have no effect in removing the consolidation. At the circumference of the consolidated lung there is generally a tendency to spreading of the congestion; this aconite will control and remove, but it seems to have no power over the actually consolidated portions of lung.

In tonsillitis it is valuable, and it removes those irritable tickling throat-coughs so often met with in throat and lung affections. It is also of service to plethoric persons when suffering from asthma; also in croup, and in acute catarrh, with coryza.

Aconite is of great use in cases of palpitation of the heart which depend upon simple hypertrophy of the left ventricle; but in cases of valvular disease and regurgitation it is dangerous.

All the benefits of the drug may be obtained from its use in the form of the tincture of the British Pharmacopœia, in doses of one minim every half-hour and upwards.

Pulsatilla Nigricans.—Anemonine, the active principle, causes in animals toxic phenomena, the most important of which are diminution of the frequency and strength of the heart's pulsations and slackening of respiration; after death relaxation of the heart-walls and disten-

sion of the heart cavities with fluid blood, and congestion with œdema of the lungs are found. Anemonine has been of service in cases of coryza and sub-acute inflammation of the mucous membranes generally. In half-grain and one grain doses it has been found useful in irritative cough, asthma, and hooping-cough.

Helleborus Niger.—The special action of this plant and of its alkaloid, helleborein, on the heart resembles that of digitalis, but is quantitatively much weaker; small repeated doses slow the heart, larger doses hurry its action, and then usually arrest it suddenly.

Actœa Racemosa.—Is stated to be of service in the treatment of humoral asthma, catarrh, and similar affections. In cardiac affections where the heart and the pulse beat intermittently it is of benefit; that the action of actœa upon the heart is strongly stimulating and tonic there can be no doubt. It frequently relieves distressing dyspnoea, when the heart is weak and its action irregular, and this even when digitalis itself has failed to be serviceable.

Atropa Belladonna.—There seems to be difference of opinion as regards the effects of belladonna on the pulse, but Dr. Phillips's experience corresponds with the statement made by Meuriot, viz., that from eight to ten minutes after a subcutaneous injection of atropia there is an acceleration of the pulse, which lasts for one or two days, and is then followed by retardation.

The drug depresses, and, in large doses, paralyzes the peripheral ends of the cardiac branches of the vagus, and the motor cardiac ganglia, and also depresses the irritability of the heart-walls; it has no influence upon the cardiac depressor nerve. It paralyzes the terminals of the vagus in the lungs, but only temporarily, and increases the excitability of the inspiratory centres.

In the early stage of pneumonia belladonna has frequently proved useful; in asthma it was strongly recommended by Dr. Hyde Salter. In hooping-cough it has been employed with success, particularly in the febrile stage of the disease, or when the hooping-cough is complicated with dentition; it relieves the congestive irritability of the respiratory passages, also the determination of blood to the head. That belladonna is exceedingly useful when the severity of the convulsive attacks is abating is generally acknowledged. The author believes that it is equally useful during the previous or febrile stage. The dose should be from three to ten minims of the tincture every one to three hours, both quantity and interval being regulated by the susceptibility of the patient to the action of the drug.

Atropia has the power of antagonizing hydrocyanic acid. Preyer discovered that prussic acid kills by embarrassing the heart and respiration, and that this effect is produced by an intense irritation of the inhibitory cardiac nerves, and the pulmonary branches of the vagus. Atropia paralyzes these, and the result of this paralysis is to re-excite

the action of the heart after it has been stopped by hydrocyanic acid.

Hyoscyamus Niger.—Spasmodic throat coughs of a tickling and irritating character, such as occur principally during the night, preventing sleep for hours together, are quickly mitigated by hyoscyamus. It is very useful also in night-coughs which are incessant for a long period and which actually trouble the patient during slumber. It relieves nervous palpitation of the heart of a spasmodic character. It acts similarly to belladonna and stramonium on the pulse, reducing its force and frequency when administered in moderate doses, and quickening it when given in larger ones.

Datura Stramonium.—This drug produces speedy and permanent relief in some severe cases of spasmodic asthma, when administered in doses of a quarter to half a grain at intervals of three or four hours. It is important to remember that the desired effects of the drug can be produced with much greater promptitude and certainty by the use of the seeds than by that of the leaves.

Nicotiana Tabacum.—Small doses affect the heart in a double manner, the vagus branches being in comparison slightly, the cardiac motor nerves much more powerfully affected; the cardiac muscular structure does not appear to be directly affected. The administration of large doses seems to produce death by direct paralysis of the heart. Tobacco has often proved useful in nervous asthma.

Papaver Somniferum.—In cases of angina pectoris—one special form of localised spasm—opium stands now in a different position from that which it formerly occupied. Dr. Walshe recommended it as the best remedy in this disease, but recent observation has shown that more speedy relief may be obtained by the use of nitrite of amyl, or of ether, or by resorting to brandy and other diffusible stimuli.

The effect of opium in allaying irritation and hypersecretion of mucous membranes is remarkable. The commonest example of this is found in the case of catarrhal irritation of the mucous membrane of the nares, the larynx, and the bronchial tubes. It is to the early stages of these affections that opium is specially applicable; its employment at more advanced periods is often hurtful. In developed bronchitis, when the secretion is copious and the expulsive power is feeble, it is quite possible to do even fatal mischief by the use of opium; moderate doses only are useful in the irritative affections of the air-passages. Full doses are sometimes of benefit in true spasmodic asthma, but belladonna or stramonium is more efficacious and less dangerous.

The severe acute pain of serous inflammations, especially pleurisy, may, Dr. Phillips says, be relieved by means of one-sixteenth to a quarter of a grain of morphia hypodermically, more satisfactorily than through the employment of leeches or the lancet.

Codeia has been found useful in allaying irritation and hypersecretion of the bronchial mucous membrane. Dr. Anstie obtained satisfactory results from its employment in doses of one-sixth of a grain every three to six hours.

Narceia has been recommended as an exceedingly good remedy in irritative cough, and especially in phthisis.

Sanguinaria canadensis.—This drug is stated to be of value in various affections of the respiratory organs. In acute bronchitis it is given in doses small enough not to produce vomiting; but frequently repeated, until the rapidity of the pulse diminishes; in this manner the inflammatory irritation is checked, and expectoration becomes easy. Combined with hyocyamus, conium, camphor, or opium, *sanguinaria* may be very useful in chronic bronchitis. In pneumonia, when the fever has abated, it does good. It is also of use as an expectorant or as an emetic, in the treatment of whooping-cough. In croup or pseudo-membranous laryngitis, the best emetic is undoubtedly *sanguinaria*; in the first stage of croup, in doses sufficient to cause vomiting, it is said to strangle the disease.

Polygala Senega.—It appears to be well established that this drug is beneficial in cases of pneumonia and other chest affections. In the advanced stages of pneumonia, when the cough is obstinately irritating, and painful, with a sense of oppression and tightness across the chest, this drug removes the tightness and oppression, relieves the cough, and rapidly promotes expectoration. In the bronchitis of old people, especially when complicated with emphysema, when the cough is harsh and irritating, the breathing oppressed, and pains are felt more or less throughout the chest, *senega* often acts more beneficially than any other drug. In humeral asthma it diminishes the secretion and promotes easy expectoration. In croup and in whooping-cough it is stated to do good.

Tar has been found to diminish the secretion and allay the cough in chronic catarrhal affections, especially in chronic bronchitis. In tubercular phthisis also it is of service, acting as an expectorant, soothing the cough, and relieving the oppression. In pulmonary affections the steam of tar-water from a vaporizer is the most useful mode of inhalation; it not only increases the bronchial secretions when the mucous membrane is dry and inactive, but in other cases diminishes it when the secretion is already too profuse.

Bryonia dioica is valuable in pleurisy and other serous inflammations; the effects are best seen in the second stage, in which general pyrexia has disappeared, but exudation continues. In the cases in which aconite is effectively employed in the earlier feverish stage, *bryonia* afterwards proves most useful; it limits the extent of serous effusion, and actively helps its removal by absorption. The drug is more especially effective in pericarditis, and in pleurisy; in pleuro-pneumo-

nia also it is of service, limiting effusion, and assisting absorption. Given in large diuretic doses it is known to have a depressing effect on the heart.

Punica granatum is strongly recommended for employment as the basis of a gargle for relaxed gums and throat. In phthisis pulmonalis it checks the profuse perspiration and the colliquative diarrhœa.

Digitalis purpurea.—The physiological action of digitaline may be summed up as follows:—1. It is a cardiac poison: in large doses it brings the heart to a standstill. 2. In smaller doses it produces faintness, diarrhœa, nausea, and vomiting, with irregularity of the heart's action. 3. In still smaller doses, the heart's pulsations are much reduced in frequency, and the arterial blood-pressure is remarkably raised. 4. Doses large enough to slow the heart's action usually reduce the temperature.

Traube has put forward the theory that the action of digitalis on the heart takes place through the medium of the vagus; this is at first stimulated, and exercises increased inhibitory action on the heart, reducing the number of beats; after a time, however (with large or repeated doses), there is vagus-exhaustion, the result of which is fluttering, rapid, and irregular cardiac action. The theory of direct stimulation of the cardiac ganglia giving rise to increased propulsive action of the heart and overcoming the resistance of the inhibitory vagus branches is supported by Handfield Jones, Fuller, and Fothergill.

Digitalis is a tonic to the heart. Its action is most effective in insufficiency of the mitral valve. In cases of aortic disease, when compensation by hypertrophy continues to take place, patients do not well tolerate the drug, but when the inadequate hypertrophy makes the over-burdened left ventricle liable to sudden failure with serious or fatal results, digitalis may prove of real service. As a rule, those cases of heart disease will receive most benefit from digitalis, in which there is weakness of heart-pulsation, irregularity (with or without dyspnœa), venous engorgement (with or without dropsy, but especially when combined with the latter), and a scanty secretion of urine. One or two drachms of the infusion should be given every night and morning, and increased every three or four hours until a decided diuretic effect is produced. It is remarkable how unfailing is the occurrence of this diuretic action; for while in health it is difficult to procure decided diuresis at all, in various cardiac conditions it produces a flow of urine with a certainty almost magical.

The diuretic action of digitalis is also especially valuable in purely dropsical hydrothorax, and in passive kinds of pleuritic effusion.

In pericarditis Niemeyer strongly recommends digitalis in cases

where the heart's action is very rapid and feeble, and where there are cyanotic and dropsical symptoms.

In hæmoptysis, as soon as the characteristic slowing of the pulse is produced by digitalis, the bleeding from the lung is stopped (Dr. Brunton.) It seems probable that the cessation of hæmorrhage is chiefly due to the contraction of the smaller arteries, and the consequent prevention or diminution of venous stagnation.

Anthemis nobilis.—The physiological effect of chamomile oil is its power to lower the reflex excitability. It may, therefore, be of use to relieve coughs which mainly depend on heightened reflex irritability. In pulmonary catarrhs, in spasmodic asthma, and in whooping-cough, chamomile oil has been found to do good in doses of from two to eight minims.

Arnica montana.—The physiological action of an aqueous solution of arnica is like that of a solution of trimethylamine. In large doses it reduces the frequency and force of the pulse; in its concentrated form it acts as a caustic alkali. The hydrochlorate of trimethylamine, a definite crystalline salt, has been found of much service by Beaumetry, and more recently by Dr. Spencer (of Clifton), in acute rheumatism. In epistaxis and hæmoptysis, and in pulmonary congestion, it is said to be of use.

Guaiacum Officinale.—In small doses, guaiacum has the effect of stimulating the vascular system, and often produces diaphoresis. Palpitation of the heart may result. In chronic pulmonary catarrh, especially when occurring in gouty subjects, the drug manifests a beneficial action. It is also stated to relieve the pain and reduce the inflammation in tonsillitis.

Physostigma.—Besides its action on the spinal cord, Calabar bean possesses a special power over the movements of the heart, which, in small doses it merely retards, but in large doses completely arrests. The interference with respiration is either the consequence of a sudden interference with the heart's action, or is produced by a destruction of the motor power of the respiratory muscles from paralysis of the spinal cord.

Vitis Vinifera.—The "grape-cure" frequently confers benefit in cases of chronic catarrh of the mucous membranes. The evidence of benefit as regards the phthisical diathesis seems doubtful; it may be questioned whether the supposed cures are not effected rather by change of climate than by the specific treatment.

Urginea Scilla.—The principal action of squill appears to be exerted on the lining membrane of the excretory organs, particularly the bronchial, the urinary, and the gastro-intestinal. As an expectorant, squill is employed most beneficially in cases where there is an increased secretion of pulmonary mucus; in chronic bronchitis with profuse loose expectoration, and in some cases of whooping-cough, it is of value.

Cerasus Virginiana.—The Virginian bird-cherry bark has a depressing effect on the action of the heart and arteries. It has been found of service in the hectic fever of scrofula and consumption, also to allay irritable and nervous cough, and it gives relief from the dyspepsia and dyspnœa of cardiac disease in its early stages.

Lobelia inflata.—In small doses lobelia acts as a diaphoretic and expectorant, the latter property being manifested without involving the pain of coughing. It gives relief in paroxysmal spasmodic asthma, but is of doubtful utility in catarrhal asthma, croup, and whooping-cough.

Quinine.—That quinine is a protoplasm poison has been conclusively shown by Dr. Buchanan Baxter, from his experiments on its power of arresting amœboid movements of the colourless corpuscles of the blood. In many examples of phthisis with lung softening, and in hectic attending large chronic abscesses connected with carious bone, in both of which the hectic partakes of the character of a true pyæmic poisoning, quinine in large doses of from 12 to 20 grains daily is indicated.

In many cases of double pneumonia (more particularly that associated with general blood-poisoning), the employment of quinine with alcohol gives the best chance of recovery. In cases of markedly asthenic pneumonia, this drug, in doses of 5 grains every three hours, is most valuable. In laryngismus stridulus we have a most valuable remedy in quinine: and in asthma it was considered by Dr. Hyde Salter to be the best of all tonics.

Cephaelis Ipecacuanha.—This drug is highly useful in various ways:—As an emetic; as an anti-catarrhal remedy, in common catarrh of the throat and bronchi; as an arrester of hæmorrhage, in the hæmoptysis of early phthisis; in the passive hæmorrhage from merely engorged bronchial mucous membrane; and in various spasmodic diseases of the respiratory organs.

Colchicum Autumnale.—This drug acts indirectly as a sedative to the circulation. In certain acute inflammations, experience shows that colchicum exerts a happy influence; but it is difficult to say whether the fortunate results are not due to the fact that the bronchitis or other inflammatory condition is but a part of the gouty diathesis.

Veratrum Album and Viride.—One of the most constant phenomena resulting from veratrine is a steady descent of the pulse, which often reaches a very low level. Squarey's experiments led him to conclude that veratria acts specially on the heart, and that it is very analogous in its effects to digitalis. It has been highly recommended by Vogt, Aran, and Trousseau, in pneumonia. Dr. Phillips considers that veratrine may produce striking alleviation in pneumonia, but that it is on the whole so unmanageable a remedy as to be of doubtful applicability.

Ergot is of special value in cases of epistaxis, hæmoptysis, and hæmatemesis. In aneurism the treatment by hypodermic injection of ergotine has met with an encouraging amount of success.

Iodine Biniiodide of Mercury, &c., in the Treatment of Goitre.—Dr. J. Fayrer says that—

As it seems pretty well settled that calcareous water is the chief cause of goitre, so it is decided that iodine in some form is the best remedy. There can be little doubt that if the disease is treated early by the application of iodine and the use of quinine, or perhaps arsenic, and by removal from the endemic area—or, if that be impracticable, by changing the water, and making some variation in the residence—great benefit, if not absolute removal of the disease, may be secured. To obtain the most satisfactory results, it should be treated early, before advanced tissue-change has occurred. If the treatment be adopted at a later period, it may still be beneficial, though less so than if in the early stage.

We are indebted to Captain Cunningham and Major Holmes for our knowledge of the valuable properties of the biniiodide of mercury in the treatment of goitre by external application. These officers, when stationed in the Terai, were struck by the extent to which the inhabitants suffered, and turned their attention to finding some remedy; with what result may be gathered from Captain Cunningham's statement, who says:—"In the cold weather of 1854-5, I must have treated upwards of 20,000 or 25,000 goitrous persons; and in one day I have seen as many as 500 at my house, who were all treated."

The remedy is prepared and applied as follows:—Melt 3 lb. of lard or mutton suet, strain and clean; when nearly cold, add 9 dr. of biniiodide of mercury, taking care to make the powder fine by trituration in a mortar; work in the mortar until no grains of red are apparent in the ointment, and put in pots for use, taking care always to keep both powder and ointment from the light. Use as follows:—About an hour after sunrise apply the ointment to the goitre with a spatula made of ivory, or of the thin, broad, smooth bamboo (quantity according to the size of the tumour); rub it well in for at least ten minutes. Let the patient then sit, with the goitre held well up, in the sun, and let him remain so as long as he can. It is probable, that, about noon, he will suffer severe pain from the blistering effect of the ointment, although no pustules are raised in the skin. About two p.m., the ointment should be again applied, with a very tender and careful hand; and the patient should be despatched to his house, with orders not to touch the ointment on any account with his hand, but to allow it to be gradually absorbed, which absorption will be complete on the third day. This treatment is

quite sufficient for an ordinary cure. Should the case be a very bad one, the patient is ordered to return next year, for the removal of what may remain of the tumour. Except in goîtres of the very largest size, this is seldom necessary. After the application of the second year, no goître has been known to continue.—("The Lancet," Oct. 31, 1874.)

Belladonna in Exophthalmic Goitre.—Dr. R. T. Smith gives two cases of exophthalmic goitre, in which the administration of belladonna gave decided relief.

In one case, that of a girl, aged twenty-four, five minims of the tincture were given every hour. Compared with previous treatment the effect was surprising. In two days the pulse was 90, the palpitation was very materially relieved, and the outbursts of perspiration very much subdued. In four days the pulse was 80, and on the fifth day the patient walked from King's Cross to Paddington and back again. For ten days no other drug was given, and it had once to be suspended owing to an intercurrent attack of diarrhoea. The dose was then reduced to fifteen minims four times a day; subsequently iron was added.

The relief of the palpitation, of the quick, throbbing pulse, and of the profuse perspiring was almost immediate. The patient was restored to comfort and ease in a fortnight. Amelioration in other respects was gradual, and is still progressing. The diplopia was removed in six weeks. It was quite two months before decided improvement in the exophthalmos could be reported.

In the other case, a girl, aged twenty-six, belladonna quickly relieved, after various other drugs had failed, and in a month she was considered cured.—("Lancet," June 27, 1874.)

Cotton-wool in the ears as a prophylactic and curative application in coryza and sore-throat.

The nervous connections which have been shown to exist between the ear and the throat, combined with the fact that cold is more readily caught from a side draught, and that strumous children who are liable to colds often suffer from discharges from the ear, seem to afford evidence in favour of the utility of a practice, which a correspondent of the "Practitioner" (Feb., 1875) has found so efficacious that for seven years he has been able to stave off any heavy cold in the head to which he was formerly very liable. Sore throats seem to be always benefited by it) and had colds invariably relieved.—("London Med. Rec." Feb. 17, 1875.)

Veratrum Viride in Laryngitis.—Dr. Handfield Jones reports a case of laryngitis, occurring in a woman, aged twenty-four, treated by veratrum viride with marked success. The tincture was given in doses of four minims every hour; after the seventh dose vomiting occurred, and it was discontinued for nine hours; it was then con-

tinued at intervals of three hours. Within forty-eight hours the laryngitis had subsided, but it was succeeded by a good deal of pneumonic congestion of the lower part of the right lung, which lasted a few days. Dr. Jones considers that there is little room for doubt that the drug was very efficacious in subduing the disease.— (“Med. Times and Gaz.,” Jan. 9, 1875.)

Tar and Ipecacuanha Spray in Winter Cough.—Dr. Sydney Ringer and Mr. Wm. Murrill report some observations on the value of tar in bronchial catarrh and winter cough. The drug was given in two grain doses, made into a pill, repeated every three or four hours. It was tried in twenty-five cases. Most of the patients began to improve from the fourth to the seventh day, and in about three weeks were well enough to discontinue treatment. A relapse often occurred in a week or two, but the symptoms a second time quickly subsided under similar treatment. Tar was found to be useless in bronchial asthma, and its effects were more evident in cases where expectoration and cough were more marked than dyspnoea.

The same observers report observations on the use of ipecacuanha wine spray. They found that the spray is useful in the same cases for which the tar is of benefit, but that the former acts more quickly and relieves dyspnoea. The spray was also found to be serviceable in non-febrile inflammatory sore throats, also in hoarseness from congestion of the vocal cords.— (“Brit. Med. Jour.,” March 20, 1875.)

Tar in Chronic Affections of the Mucous Membranes.—Dr. McCall Anderson testifies to the virtues of tar as an internal remedy in catarrh of the bronchial tubes and in chronic affections of the mucous membranes generally.— (“Brit. Med. Jour.,” April 24, 1875.)

Treatment of Pneumonia.—Lectures on the specific fevers and diseases of the chest. By Samuel Wilks, M.D., F.R.S. (Reprinted from the Guy's Hospital Gazette for 1873 and 1874.) We extract the following on the treatment of pneumonia:—

“Now comes the practical question as to what I should advise you to do in a simple case of acute pneumonia. First of all, don't give brandy as a remedy, except under special circumstances. As regards the old antiphlogistic treatment, there cannot be a doubt, from the truthful character of the records, that its use was often attended with a striking good result. We read of persons sitting up in bed with great oppression of breathing, their faces gorged with blood, and the surgeon coming in with his lancet, bleeding in a full stream, and immediately quieting the respiratory distress, and relieving the circulation. In such cases there may have been bronchitis, or there may have been heart disease, but the results were, nevertheless, the same. This seems to show that in cases of great engorgement of the lungs or of the right

side of the heart, bleeding will afford relief, and, therefore, under similar circumstances, I should advise you to have recourse to the measure. When you find the venous system gorged in primary affections of the lungs, or in secondary congestions, as in heart disease, or from paralytic conditions as in apoplexy, you cannot be wrong in bleeding; you relieve the venous system as well as the right heart, and allow the circulating apparatus to right itself. I have bled patients a sufficient number of times under these circumstances to be able to advise the method with confidence. The objection sometimes made, that the patient is too weak, as indicated by the pulse, is futile, since, owing to the small amount of blood which reaches the left ventricle to be propelled onwards, the pulse is naturally small. Therefore when I say bleed in pneumonia, it is when the lung is much oppressed, and the venous system gorged. I cannot recommend venesection for the reasons our forefathers did, to knock down the disease at its onset, for I have no experience of the treatment under these conditions.

"Now, as regards the other parts of the antiphlogistic treatment, I feel confident that opium deserves the title of an antiphlogistic. When one sees inflammatory processes subside under its use, I cannot doubt of its influence over them. Opium is, therefore, a good remedy; but must be administered with caution, since it acts directly on the respiratory centre, to lower its activity. If, therefore, there is not much power of breathing, and much mucus in the tubes, it must be given with the utmost care. Provided it has no injurious effect in this way, its use is for good. Now, as regards antimony, I believe there is sufficient evidence to show that this drug acts also on the vascular system through the nerves, and may, therefore, be called antiphlogistic. As for calomel, I hesitate to put it in the same category. That it has a power of acting on the secreting organs, and stirring up the tissues to some kind of activity, I have no doubt; and thus, when various inflammatory results have taken place in the body, mercury is found instrumental in aiding to get rid of them; but whether it has any power of arresting inflammatory processes I much doubt. Salines are usually given as acting on the skin, kidneys, etc.; and, as some say, for actually cooling the blood. I think there is some evidence to show that the old method of treating pneumonia was followed by as good results as any other; and having been a witness myself of the method, in a great many cases, I have no hesitation in recommending its continuance until it has been satisfactorily proved that all medicines are ineffectual. In a tolerably strong person you may wish to omit the antimony. Under these circumstances, you might be content with the saline mixture and Dover's powder. If the patient be feeble, you should give ammonia with the saline, and some alcohol—a table-spoonful of brandy or whisky with egg every

three or four hours. I cannot advise you to give a bottle or two of brandy in the twenty-four hours, any more than if I recommend opium or quinine, that you should at once administer it indiscriminately, and in poisonous doses. I would also recommend you not to use blisters in acute pneumonia; I am strongly impressed with the conviction that they are worse than useless. But you may use the warm jacket, by means of hot flannels or spongio-piline tied around the chest. The increased flow of blood to the surface seems to relieve the internal congestions.

"I told you that statisticians are showing that the best results have been obtained when no medicine has been given, since the disease must run its natural course. If this be corroborated by further observations, I may, at a future time, instruct my class to follow merely the expectant plan. There seems no reason, however, theoretically, why the inflammatory process should not be arrested in any one spot; and certainly no reason why it should not be prevented from extending. We meet with cases where the inflammation is limited, showing there are circumstances which affect the process for good or evil. These may be found in the form of drugs; and, therefore, I continually use the various substances from time to time recommended. At the present day, veratrum, digitalis and aconite are undergoing a trial by various medical men, and even the use of cold water."

Phosphate of Lime and Raw Meat in the Treatment of Phthisis.—Dr. Henry Blanc gives his experience of this treatment. All the cases did well. He gives the raw meat in the following manner:—A pound to a pound and a half of fresh beef, deprived of fat, bones, etc., is placed over a quick fire for a few minutes, in order to whiten and harden the external surface only; the piece of meat is then cut into two or three pieces corresponding to the size of the meat-press, and all the juice is extracted by the pressure of a powerful screw. The superficial coction is necessary to overcome the elasticity of the meat, which renders the extraction of the juice a very difficult matter unless more powerful machines be used than the simple one at present required. A pound and a half of good fresh meat gives a teacupful of juice. The juice should be prepared daily. This juice, having all the physical properties of raw meat, is easily digested, is well tolerated, and, served in the following manner, is always very grateful to the patient. The juice should be mixed with equal parts of tepid broth, made of bones and flavoured with salt and pepper, and to which tapioca, vermicelli, etc., can be added. Care, however, should be taken that the broth is *never more than tepid*, otherwise coagulation takes place, and the desired effect is not obtained.

The treatment of the consumptive patient by this method is conducted

as follows:—Early morning: Warm milk (not boiled), with bread and butter, and if the appetite be good, some fat bacon and eggs. At eleven or twelve o'clock, breakfast, before which a drachm of the syrup of triple phosphate should be taken; during the meal itself, a dose of the muriatic phosphate of lime, and half the daily allowance of the raw meat juice in some broth; the meal should consist, according to appetite and digestive powers, of fish or poultry, or white meats, fresh vegetables, and a few glasses of good alcoholic wine. Dinner at six o'clock on the same principles; broth, with the remainder of the raw meat juice, and, instead of the triple phosphate, a dessert-spoonful of cod-liver oil can be taken with advantage after the meal, if the liver be not enlarged and fatty, and the digestion good. The muriatic solution, or wine of phosphate of lime, should also be taken during the dinner. At night, before retiring to rest, a cupful of warm fresh milk, diluted one-third with Vichy water.—("Lancet," June 13, 1874.)

Treatment of Phthisis by Strapping the Chest.—Dr. M'Crea describes a method of strapping the chest in phthisis employed by him at the Belfast Dispensary. Emplastrum roberans, spread on swan's down, is used. Strips are cut, which must be eighteen inches in length. These are applied vertically and horizontally, some crossing the sternum, others crossing the spine, and others extending from behind over the shoulders and down the front. Whilst applying the strips round the chest they should be pulled tight, the patient at the same time making a forced expiration.

A re-application will probably be required in a fortnight, or sooner if the straps become loose. Dr. M'Crea states that this method of treatment is followed by immediate and marked diminution of the cough, cessation of pain, relief of dyspnoea, and reduction of temperature; and that the patient usually expresses at once a feeling of great comfort. He is so satisfied with the results that he gives this method of treatment the first place among all the remedies for phthisis.—("Lancet," July 18, 1874.)

Atropia in Phthisical Sweating.—Dr. A. H. Hassall, at the Ventnor Hospital for Consumption, has tested the action of atropia in phthisical sweating.

The sulphate of atropia is best prescribed in pill, with extract of gentian; watery solutions are not to be depended upon, for they soon spoil by keeping. The first dose should in no instance be larger than one-eightieth of a grain, and, guided by the results, the dose may, if necessary, be increased to one-sixtieth, or even one-fiftieth of a grain; but if this latter quantity be exceeded, well-marked symptoms of poisoning will almost certainly ensue.

It was found that the remedy controlled the perspirations more or less in the whole of sixteen cases; that the effect was direct and

permanent in four; direct but temporary in four; beneficial but transitory in seven; and that it was inadmissible in only one instance. These results will be all the more striking when it is added that in many of the cases the sweatings had extended over a period of several weeks, and had resisted all the ordinary methods of treatment.— (“Lancet,” July 25, 1874.)

Phosphorated Cod-liver Oil in Phthisis.—Dr. Thorowgood reports a case of phthisis treated by phosphorated cod-liver oil.

The patient, aged twenty, had suffered from disease in the bones of the leg during boyhood; fragments of bones had come away, and the apertures ultimately cicatrised. He first came under observation with chest symptoms in March, 1869; there was then impaired breathing at the right apex, and he was ordered phosphorated cod-liver oil (gr. one-fifth to the ounce), 3 ij. three times a day, with quinine and phosphoric acid.

In June, 1871, he had severe hæmoptysis. In March, 1873, there were signs of a cavity in the right upper third of the chest, the left lung unaffected. In September, 1873, he had gained eight pounds in seven weeks, whilst staying at Harrogate; general condition much improved, but there was marked falling-in of the chest wall on the right side. In June, 1874, he complained only of slight morning cough, and seemed to be in good health. The recovery is considered to be due to persistent perseverance in the phosphorated oil, combined with the effect of the dry air of Harrogate.— (“Lancet,” April 24, 1875.)

The “Grape Cure.”—The head-quarters of this remedy are at Meran, in the Tyrol, of which province it was some time the capital. Apart from the specific benefits of the cure, Meran has much to recommend it in the way of climate, to which, we suspect, the grape treatment owes not a little of its efficacy. In August, September, and October, its population of 4,500 is considerably reinforced by German, Russian, and Italian visitors, who, with a sprinkling of English and American, have come for the cure. Accommodation is comfortable and cheap—cheaper, while not less comfortable, than in most of the Italian and French places of resort. Invalids suffering from chest affections—bronchitis or consumption in its pre-tubercular stage—are the chief subjects of the grape treatment. Less than three pounds of grapes a day is not enough for efficacy. The patient begins with one or two pounds per diem, dividing the quantity into three portions—one taken an hour before breakfast; the next before dinner, which comes off at 12.30 or 1 p.m.; and the last in the afternoon or evening. The grapes are eaten *sub Jove frigido*, and after two or three days the quantity is increased by half a pound until it reaches three or four pounds. This amount often suffices the patient, who finds, as a rule, that he gains in weight and in strength also. Chronic liver complaints, especially when due to excesses in wine-drinking,

are, it is said, markedly relieved by the grape cure, the potash salts in the fruit supplying the element which the wine, in the process of manufacture, has lost. Hepatic dropsy has been known to be mitigated in this way. Patients should not be discouraged, if, after the first day or two, they feel not so well as they were before; while one signal point in favour of the "cure" is this, that no special diet is enforced. Indeed the grapes themselves become so satisfying that indulgence in other food is hardly necessary. Before trying the cure, however, the patient should have his case thoroughly examined by his physician, who will tell him how and to what extent he may avail himself of the "Natur-therapie" of Meran.—("Lancet," June 6th, 1874.

Rest in the Treatment of Chest Affections.—Dr. F. T. Roberts contributes a paper on this subject. He summarises what he believes to be the only way in which any mode of rest can be expected to do good in the treatment of phthisis as follows:—

1. By keeping the lungs at rest, more or less generally or locally, disease may be prevented, its spread checked and its cure promoted when it has already developed.

2. Possibly, by diminishing the flow of blood through the lungs, active mischief may be to some extent checked.

3. By looking to the conditions of the air inhaled, any irritation from this source may be prevented.

4. Local symptoms may be considerably relieved and untoward accidents, such as rupture of a vessel, averted.

5. General destruction of tissue may be prevented by making but little call on the patient's efforts, and this is a matter of considerable importance in some cases.

Dr. Roberts thinks that any advantage which can be expected may be derived from strapping the chest with strips of some plaster spread on a firm material. He considers "lung splints," to have positive objections, and to be not at all needed.—("Practitioner," August, 1874.)

Aspiration in Chronic Pleurisy.—Dr. Russell reports a case of chronic pleurisy, in which aspiration was performed four times, on which he makes the following comments:—

The practice of withdrawing a portion only of the fluid from the chest, when performing the operation of paracentesis, which is applicable to cases of acute pleurisy, is also of much importance in the chronic form of the disease, especially since the introduction of the aspirator. When the lung has been disabled by the protracted pressure of fluid within the pleural cavity, it becomes unable, in proportion as it is disabled, to expand as that fluid is withdrawn. By the old method of tapping, no danger was to be feared from continuing the operation beyond the limit at which the place of the fluid withdrawn could be readily supplied. In that case, either the fluid

would cease to flow, or, at the worst, air would enter from without through the canula. In using the aspirator, on the other hand, we have no means of knowing when this limit is reached, at least until a considerable degree of resistance to the outflow has been created; and, by continuing to apply the exhausting force beyond this point, a state of tension would be created within the chest, which would be imperfectly relieved by the thoracic walls, especially in middle-aged people; as, indeed, was illustrated by the case here reported, in whom, after repeated aspiration had occasioned the advance of the opposite lung behind the sternum, the capacity of the affected side was shown by the circrometer to be but slightly diminished. This state of tension would operate especially upon the stream of blood in the large veins; would have a tendency to load them inconveniently, together with the right auricle, even to offer opposition to the blood leaving the chest; in fact, the effect of inspiration, which under ordinary circumstances is usefully employed in aiding the current through the venous sinuses, would be exaggerated and sustained, and serious disorder of the circulation would ensue, leading probably to coagulation. No such effect upon the circulation, it is true, was produced in my patient; but it is not difficult to imagine that it would have happened had not the operation of the aspirator been checked as soon as complaint was made. We may note the gradual extension of the sound lung into the diseased side of the thorax after successive aspirations.—("Brit. Med. Jour.," Aug. 8, 1874.)

Inhalations in Asthma.—Ætheris sulph., 30 parts; acidi benzoici, 15 parts; balsami peruviani, 8 parts; or, according to another formula, ætheris sulph., 2 parts; spiritus terebinthinæ, 15 parts; acidi benzoici, 15 parts; balsami peruviani, 8 parts. Place the mixture in a vessel having a large opening; the warmth of the hand is sufficient to volatilise the materials, and inhalations may be used four or more times a day as occasion demands.—("Lond. Med. Rec.," Nov. 4, 1874.)

Angina Relieved by Inhalation of Nitrite of Amyl.—David S., aged thirty-four, had suffered more or less from his symptoms for about two years. The attacks could be kept off to a great extent by his remaining quiet in the house, but were induced by even moderate walking or other exercise. His attacks were much worse by night, generally awakening him about every hour. He had no dyspnoea. He said that he could sometimes keep off an attack by holding his breath. A double *bruit* was found at the heart, loudest over the second right costal cartilage. There were some wheezing *râles* in both lungs. He said that he had been using nitrite of amyl with much benefit for about six weeks. Every night in hospital, he had several attacks, sometimes four during one night; and the inhalation of two drops of the nitrite of amyl invariably relieved him.—("Brit. Med. Jour.," Nov. 28, 1874.)

Phosphorus in Chest Affections.—Dr. W. H. Broadbent reports some illustrations of the therapeutic uses of phosphorus in chest affections. A patient, æt. fifty-six, with old aortic regurgitant disease, complained of intense pain of an anginoid character, intermittent, often rousing him from sleep, seated at the epigastrium and cardiac region, with shootings down the left arm. He had previously taken digitalis with muriate of iron and nux vomica without relief. Phosphorus capsules were given twice a day after food, and were considered by Dr. Broadbent to give decided relief to the anginoid pain.

In another case of angina pectoris, occurring in a young man free from discoverable organic disease, the phosphorous capsules gave almost immediate relief, but suspension of the remedy was several times followed by a return of the pain, which was again relieved when the phosphorus was resumed.—(*"Practitioner,"* Jan. 7, 1875, pp. 19, 20.)

Treatment of Primary Heart-Disease.—Dr. J. Milner Fothergill, in a paper read before the Harveian Society, sums up the method of treatment of primary diseases of the heart. He maintains that in many cases there is muscular debility alone arising from sustained over-exertion, myocarditis, etc. When muscular atony or adynamy exists without valvular disease, if of recent standing, the tone of the ventricle may be restored in a brief time by means of rest, good food, and cardiac tonics, and this restoration may be permanent.

Of the remedies which exercise a specific effect over the heart, digitalis is the most certain and effective. Under its use a reduction in the number of beats occurs, and with this a distinct and pronounced augmentation in their power. By this means longer rest is given between each systole, and the aggregate of the heart's sleep is increased.

The palliative or curative measures may be summed up as follows:—

1. That it is of the utmost importance in the treatment of primary diseases of the heart to reduce to a minimum the calls upon that organ. Consequently light labour alone must be attempted; and rest in bed is often very desirable at the commencement of a course of treatment as well as at intervals afterwards.

2. Frequently much relief can be afforded when dropsy is present by unloading the distended venous system. Brisk catharsis gives great relief, and does not depress the patient, as might be apprehended.

3. In all cases the heart must be acted upon directly by agents which increase the vigour of the ventricular contractions, of which digitalis is the chief. This agent may be given uninterruptedly for years without any so-called cumulative action, if the cases are properly selected. If given in improper doses unpleasant consequences may follow.

4. It is also very desirable that the nutrition of the heart be maintained by good food and iron in addition to the means mentioned above. Improvement in the general condition facilitates the action of the special remedies.—("Lancet," May 22 and 29, 1875.)

DIETETICS.

Dietetic Treatment of Consumption.—Dr. T. King Chambers makes some observations on diet in consumption. He states that cod liver oil is a typical aliment, representing what is the fittest of all known substances to supply the deficiency that constitutes the disease. The reason for giving cod liver oil is to counteract the tendency to form morbid solids, by supplying the most suitable material for healthy solids—the object is not so much to cure emaciation, as to cure the cause of the emaciation. For the purpose of nutrition, recently assimilated fat is requisite: and thus tuberculosis may go on unchecked for lack of it even in a corpulent person, since his store of fat is not available for digestive purposes. Cod liver oil is the most readily assimilated fat we know of. The best substitute for it is suet, either in milk, or in an emulsion with one of the gastric solvents, as first suggested by Dr. Dobell.

On the question of the advantages of a carnivorous or a vegetable diet, Dr. Chambers thinks that the advocates of neither plan are to be implicitly trusted: he considers that the food should be as near that of health as the digestion of the patient will allow—that is to say, mixed and varied, liberal in frequency, and moderate in quantity. The whims of appetite should not be thwarted, nor the prejudices of theory indulged. The author is adverse to the use of alcohol, except in the advanced stages of the disease.

Dietetics in Heart-Disease.—Dr. Chambers points out the fact that in disease of the heart the most remarkable change in respect of digestion is the slowness with which liquids are absorbed by the stomach. The fluid in excess remains gurgling about, and impedes digestion. This results from the slackening of the circulation, which is directly or indirectly effected by all the various cardiac lesions in common. The observation of a dry diet contributes greatly to the comfort of the patients, and more particularly so where dilatation of the heart's walls exist, and where, therefore, distension of the stomach would interfere with the laborious action of the heart, also in cases of heart-disease complicated with obesity.

The dietary of persons with imperfect hearts should be at least as nitrogenous as in health. We have to fear atrophic degeneration of the cardiac muscle, and this must be guarded against by generous diet, with ease of mind and body.

In the treatment of aneurism Valsalva's method is still the best, and

often the only mode by which benefit can be expected to arise in cases of aneurism of the large trunks of the thorax and abdomen. Bread and water, or pudding and water is the most effective. This anæmic dietary being for the sole purpose of bringing about the formation of a clot, must be given up as soon as the desired result is obtained, and the prevention of further arterial degeneration must be counteracted by nutritious food, moderate exercise, and ferruginous tonics.

A change of climate is also to be recommended from that of England, where degenerative disease is the rule and acute disease the exception, to Italy, where degenerative disease is the exception and acute disease the rule. The absence of aneurism is a peculiarity of the Italian climate, and the statistics of the hospitals at Milan and Genoa contrast remarkably with the hospitals in London in this respect.—("Manual of Diet in Health and Disease," T. King Chambers, M.D. Oxon., Smith, Elder & Co., 1875.)

Nutritive Enemata.—From Dr. Dobell's work "On Diet and Regimen in Sickness and Health" (6th edition, 1875, H. K. Lewis,) we extract the following:—"When nutriment is given in enemata, the quantity should not exceed from two to four ounces, and the temperature should be about 80°. The bowel should be first washed out with half a pint of warm water. An elastic bottle, holding the required quantity is better for nutritive enemata than the ordinary enema syringe. They should be given while the patient is lying on the back with the hips raised on a pillow.

The following constitutes a most important means of preserving life when food cannot be given by the stomach.

Take of cooked beef or mutton, finely grated, $\frac{1}{4}$ lb., pancreatic emulsion (Savory and Moore's) 1 oz., pancreatic powder (Savory and Moore's) 20 grains, pepsine porci, 20 grains.

Mix the whole in a warm mortar quickly and add brandy one table-spoonful, and enough warm water to bring the mixture to the consistence of treacle. Inject from an elastic enema bottle, as quickly after the mixture is made as possible, and let it be retained.

Nutritive Mixture.—When a patient will take medicine but not food—

Liebig's Extract of Meat, a tea-spoonful.

Lœflund's Liebig's Extract of Malt, a tea-spoonful.

Tincture of Capsicum, one drop.

Compound Spirit of Horse-radish, a tea-spoonful.

Water, two table-spoonfuls.

Mix well in a mortar. To be given every three or four hours. This will often bring back the desire for food.

Digitalis in Aortic Regurgitation.—Dr. G. W. Balfour, in a paper on incompetence of the aortic valve, states his opinion concerning the

value of digitalis in cases of aortic regurgitation. He believes that the drug is in no disease more valuable than in this, and its useful employment is simply a question of dosage.

The object to be aimed at is to bring about just such an amount of tonic contraction of the ventricle as shall rather more than counter-balance the dilating power of the arterial column.

He prefers the tincture to the infusion in consequence of its greater uniformity in strength, and he orders from five to thirty minims every four hours. Any faltering of the pulse, or nausea on movement, must be carefully watched for, and should indicate a cessation of the drug.—(*Edinburgh Med. Jour.*, Feb., 1875.)

Packing in Wet Sheets in Acute Rheumatism as a preventive against Cardiac Disease.—Dr. Thomas S. Dowse, in a paper read at the annual meeting of the British Medical Association, at Norwich, 1874, stated his opinion that valvular disease or pericarditis supervenes in all cases within the first week or ten days; and that the cardiac inflammation may be prevented and the rheumatic symptoms cut short by "packing" in wet blankets. After the first pack the patient is usually free from pain, and after the third the sour smell has disappeared.

The packing process should not be adopted—1. If incompetency of the aortic valves exists. 2. If there is much fluid in the pericardium. 3. If the temperature of the patient is over 104° . 4. If there is no tendency to sweating. 5. If there is great nervous prostration. 6. If pregnancy exists.

The treatment in an ordinary case should be continued three days successively, for six hours in the first day, four on the second, and two on the third day.—(*Brit. Med. Jour.*, Jan. 9, 1875.)

Blood-Letting.—Dr. B. W. Richardson describes a case of progressive pneumonia, in which benefit resulted from blood-letting. The patient, aged twenty-six, continued to grow worse in spite of salines and leeches, and on the sixth day the disease was found to have extended to the base of the other lung; at this time the breathing was difficult, the heart's action laboured, and the pulse tense. Ten ounces of blood were drawn, when faintness occurred, but instant relief to the breathing and heart's action were afforded, and from this time steady improvement took place.

Two cases are given in which general bleeding, to the amount of eighteen and twenty ounces respectively was adopted for the relief of severe pleuritic pain. The relief in both cases was immediate and decided.

One case is given to illustrate the effect of blood-letting for relief of oppression of blood in the heart—cardiac congestion.

In a case of pulmonary hæmorrhage with hæmoptysis, three tea-cupfuls of blood were drawn from the arm, and the operation

gave prompt relief.—("Med. Times and Gaz.," Sept. 5, 19, Oct. 3, 1874.)

Dr. Birkett reports a case of a man, aged thirty-eight, who had complained of cough and other chest symptoms for six months, who became very cyanotic, with distressing dyspnoea, for which venesection to three ounces gave great relief.

At the autopsy, the disease was found to be of malignant nature, to have commenced in the mediastinum and afterwards to have affected the greater part of the right lung, and to have undergone softening in parts, giving rise to the formation of cavities containing pus. The pleura was adherent below, but above the pleural cavity was filled with fetid pus (empyema).—("Med. Times and Gaz.," Oct. 31, 1874.)

TOXICOLOGY.

On Poisoning by the Inhalation of Coal-Gas.—By William Taylor, M.D. (Edinburgh: MacLachlan and Stewart. London: R. Hardwicke, 1874.)—Reprinted from the "Edinburgh Medical Journal."

The history is given of a Canadian, aged about fifty-five, who foolishly blew out the gas instead of turning it off, in his bedroom in one of the Edinburgh hotels. He was discovered quite comatose, but the efforts to revive him were so far successful that he lived for nearly two days. One special feature of the case was "a steady, and almost incessant oscillation of the eyeballs." The available cubic space of the room was 947 cubic feet; the proportion of gas could never have been more than about three per cent., or one in about 33½. Besides a very careful report of the symptoms in this case, there are notices of the Dundee and other cases, and an abstract of M. Tourdes' cases, referred to in the "London Medical Record" for August 5th. There is no English translation of M. Tourdes' monogram, and therefore Dr. Taylor's work becomes additionally valuable. The Strasbourg gas appears to have contained 31 hydrogen, 22.5 of proto-carbonate of hydrogen, 6.0 of bicarbonate of hydrogen, 4.6 of carbonic acid, 14.0 of nitrogen, and 21.9 of carbonic oxide. Its mode of preparation was somewhat peculiar, especially in the large proportion of carbonic oxide, as Roscoe's analyses give about 7.8 as the percentage of 100 volumes of coal or cannel gas for illuminating purposes.—("Lond. Med. Rec.," Sept. 30, 1874.)

Crotalus Poison.—Drs. Brunton and Fayrer, in a paper read before the Royal Society, describe the physiological action of the crotalus poison; and they report some investigations into the nature of the influence of the crotalus, and some other snake poisons, on ciliary and amoeboid action, and on vallisneria, and on the influence of inspiration of pure oxygen on poisoned animals. The results of these experiments show that cobra-virus must be regarded as, to a certain

extent, a poison to protoplasm, seeing that it arrested with rapidity the movements in infusoria. Still it cannot be regarded certainly as a very powerful one, for the cilia of the fresh-water mussel continued to move for many hours in a strong solution of cobra-poison: though in other experiments, the action was apparently arrested even in weaker solutions of the poison. In the case of the cilia from the frog's mouth, the results were more definite; but action was not invariably destroyed. The results of the action of the poison on the amœboid movements of the blood corpuscles are not very definite. In the case of vallisneria, the circulation in the cells went on with undiminished vigour after the application of the poison for two hours.

Artificial respiration, with oxygen contained in a large bag, was found to have no better effect than atmospheric air under similar conditions.—(“*Proc. Royal Soc.*,” Vol. xxiii., No. 159.)

Death from Methylene.—A death took place at the Royal London Ophthalmic Hospital from the administration of bichloride of methylene. The patient was a woman, aged twenty-five, suffering from fistula lachrymalis, and caries of bone in the neighbourhood of the lachrymal sac. A week previously the upper canaliculus had been laid open, together with a part of the outer wall of the sac, and a probe of large size was passed down the duct through an obstruction at its upper part. On that occasion the patient took methylene without any unfavourable symptom. On Tuesday two attempts were made by Mr. Couper to pass the probe, but as the patient seemed unable to endure the pain, it was thought advisable to have recourse to an anæsthetic. Bichloride of methylene was administered in the usual way by Mr. Buller, who for the last two years has been accustomed to administer this agent almost daily at the hospital, by means of a perforated leather inhaler covered with flannel. Three drachms by measure were poured into it (the ordinary quantity for an adult being four drachms). At the end of about two minutes after the inhaler had been placed over the mouth and nose of the patient, her breathing suddenly became loud and stertorous. The anæsthetic was at once discontinued, and the operation commenced. When the inhaler was removed the lips and cheeks were ruddy, but an unusual pallor of the alæ of the nose and skin around the mouth was noticed. The respiration, however, continued deep, full, and exaggerated. The inspirations were accompanied by loud palatal stertor, and the nostrils were observed to be flaccid, but there was no impediment to free access of air to the lungs. Some seconds afterwards the pulse at the wrist rapidly failed, and then ceased almost suddenly, but the respiration continued for some time, and then failed rather suddenly. The tongue was immediately dragged forwards with forceps, and artificial respiration, by Silvester's method,

established. The lower limbs and pelvis were at the same time gently raised from the couch, so as to favour gravitation of blood towards the brain. The face and breast were smartly slapped with a wet towel, and ammonia was applied to the nostrils. A strong solution of brandy and ammonia was thrown into the rectum as soon as possible, but was imperfectly retained, owing to relaxation of the sphincters. Artificial respiration was continued for forty minutes, but, with the exception of two or three sighing inspirations at intervals within the first few minutes, no sign of returning life was shown.—(*"Lancet,"* Dec. 19, 1874.)

CLIMATOLOGY.

Cold Weather and Mortality.—The *"Lancet,"* writing Dec. 12, 1874, says:—"One night last week the mercury at Greenwich fell 11 degrees below the freezing-point; and in some of the metropolitan outskirts there were from 15 to 18 degrees of frost. On two days, the mean temperature of the twenty-four hours was below freezing; but on other days there was sufficient warmth to bring the mean temperature of the week up to 38.6 degrees. The effect of such fluctuations of temperature as occurred last week cannot of course be seen in the week's return of deaths, but will appear subsequently. What cold weather does in London, however, will best be gathered from a comparison of the returns of the last four weeks with those for the four weeks preceding. In the four weeks ending 7th November the mean temperature was 51.6 degrees, and the total deaths registered amounted to 5,450; in the four weeks ended last Saturday, the average temperature was 39 degrees, and the registered deaths were 7,359. Nearly 2,000 more persons died in the latter than in the former period; and of this large increase 38 per cent. occurred among children under five years of age, and 49 per cent. among persons aged 40 years and upwards. Deaths from diseases of the respiratory organs and phthisis increased from 1,581 to 2,910 during the periods referred to; from bronchitis alone there was an increase of 525 deaths, and from pneumonia 262. The effect of age in withstanding cold weather was some years ago illustrated in the weekly returns by calculations which showed that the mortality caused by cold was twice as great under the age of twenty as it was between twenty and forty, but that after forty the power of resisting cold became so diminished that the danger to life was doubled at every succeeding nine years of age. Statements of that kind are of course not intended to be taken as absolute, but as deductions made by competent authority from recorded facts, they are worthy of attention, and should be useful for preventive purposes."

Effects of Altitude on Consumptive Patients.—Dr. W. Marcet continues

his paper on the effects of altitude in the treatment of consumption, etc., by calling attention to the physiological influence of differences of atmospheric pressure on the human body, and to the theory of the interchanges of gases in respiration.

There are two physiological circumstances to be considered in connection with the influence of a reduction of atmospheric pressure upon respiration:—1. The fact that the oxygen in a given bulk of air is proportionately lessened. 2. That the escape of carbonic acid from the lungs meets with less and less resistance in proportion with a fall in the height of the barometer.

There can be no doubt that a much greater quantity of carbonic acid is formed and exhaled at the seaside than at higher levels. When the lungs are thickened by disease and supplied with less blood than in health, the importance of favouring elimination of carbonic acid by a reduction of the atmospheric pressure must be great. The cutaneous exhalation will be facilitated as well as the pulmonary.—(*Brit. Med. Jour.*, May 1, 1875.)

Mountain Air in Phthisis.—Dr. Scrivener writes, that, from a long residence in the Andes, and consequently from a knowledge of the climate, he fully concurs in the recommendation of Dr. H. Weber and Dr. C. J. B. Williams, that phthisical patients in the early stages of the disease should get the benefit of mountain air. In the mountains of Cordova, as on the Andine heights of Bolivia, the patient will find his disease alleviated, and in time removed by the hand of nature. There, pulmonary complaints are not known to originate; and there those who suffer from them on the borders of Parana and the river Plate seek and find a permanent cure for their pulmonary ailments of all kinds. This fact has been known and acted upon from time immemorial by the inhabitants and physicians of Lima and those on the coast of the Pacific.—(*Med. Times and Gaz.*, April 17, 1875.)

Climatology of the South of France.—Dr. Wm. Marcet, in a paper on the Mediterranean Coast of the South of France in its medical aspect, calls attention to the fact, that the required combination for phthisical patients is pure air, with genial warmth, and a low barometric pressure. Cases with high temperature and quick pulse are almost always benefited; occasionally these symptoms are arrested; in most instances they are relieved. When febrile symptoms are absent, patients do well at the sea-side; some warm, sheltered spot is most desirable.—(*Brit. Med. Jour.*, March 6, 1875.)

STATISTICS.

Phthisis at Different Ages.—Dr. James E. Pollock, writing on the clinical varieties of consumption, states that according to the reports

of the Brompton Hospital, twenty to thirty is the age at which phthisis is the most prevalent.

Under twenty-five years of age are found the following varieties:—

1. Acute phthisis. 2. Strumous phthisis. 3. The ordinary continuous form of the disease (in greatest numbers.) 4. The class in which cavity is rapidly formed. 5. The large class arising out of acute diseases. 6. Marked hereditary predisposition exhibits its influence at this period.

In advanced life the disease is slower. Insurance offices act on the supposition that after forty-five the danger from phthisis ceases; but very many die of it after this age. Brinton considered that after forty *half* the danger was over. I have notes of 174 cases over forty-five years of age. Of these thirty-three were in the first stage, seventy-one in the second, and forty-two in the third. *Two-thirds* were *males*. The phthisis of early life is characterised by destruction of pulmonary tissue without limit, by inflammatory actions almost continuous; while concentration of the disease in one part of the lung, moderated and remittent inflammatory attacks, and excessive tendency to degeneration mark the phthisis of age. Chronic deposits in the lung, which have been tolerated for years, often break up in old age, and this is called *senile phthisis*. This form is often fatal without any tubercle. Chronic indurations, and fibrous over-growths, which degenerate and soften; break down into cavities of a dark sloughy appearance without membranous lining. Profuse hæmoptysis is rare. Out of 351 cases in Dr. Pollock's practice, only forty occurred after forty years of age. Pain, fever of a high character, and gastric disorder are rare. He does not propose to describe the symptoms of senile phthisis, but to call attention to the fact that age modifies the disease both in its symptoms and progress, and especially to notice the more than doubtful character of cases which often pass for bronchitis in the aged, but which are in reality ulcerative diseases of the lung, in which old deposits resulting from attacks in early life often break up and assume finally the true characters of phthisis.—(*“Med. Times and Gaz.”* July 25, 1874.)

Statistics of Chest Diseases.—From the Thirty-fifth Annual Report of the Registrar-General, containing the abstracts of the year 1872, published in 1874, we extract the following statements:—

The number of deaths in the United Kingdom for the year reached a sum total of 665,583, in a population of 31,839,260. The number of deaths to every 1,000 persons living was therefore 20.9.

The number of deaths referred to diseases of the heart and blood-vessels is 27,086. Of these 643 are from aneurism, 603 from pericarditis; the larger proportion of cases specified being hypertrophics. In syncope 922 persons died: by embolism, 136; and by angina pectoris, 350.

The diseases of the respiratory organs, of all the local diseases, are the most fatal; by them 73,393 persons died: 42,752 deaths are ascribed to bronchitis; 20,282 to pneumonia. And, while the deaths by pneumonia (inflammation of the lungs), and asthma have decreased, those from bronchitis have increased steadily from 16,499 in the year 1847 to 32,347 in 1860, and to 42,752 in 1872. Here it is necessary to bring phthisis into account. That disease affects the intestines and other viscera; but its most prominent symptoms, the hæmoptyses, and the largest tubercular deposits are in the lungs; and it was often formerly, and is now sometimes confounded with chronic bronchitis. Hence we may inquire whether the increase of bronchitis is only apparent. Whether what was formerly called phthisis, or popularly consumption, may not now be called bronchitis? In that case, there should have been a corresponding decrease from phthisis, which has, however, not been observed. The deaths ascribed to phthisis (consumption) were 53,317 in 1847; 51,024 in 1860; and 52,589 in 1872. Taking the deaths from pneumonia, bronchitis, and phthisis together for the three years 1847, 1860, 1872, the numbers are 93,263—108,635 and 115,623. The increase of population has to be taken into account; and this is done in calculating the rate of mortality. Now, dealing with the whole order, the mortality by respiratory diseases was at the rate of 30 and 34 in the two decennials 1850-9 and 1860-9; by phthisis, 27 and 25; by the two together, 57 and 59. Thus there is an evident increase in the mortality by pulmonary disease.

The year 1872 was remarkable for a diminution in the respiratory mortality; which was due to the mild temperature of the winter; for while extreme winter cold long protracted always increases, mild weather diminishes the mortality of bronchitis.

The breathing of dust, and of any mechanical substances, such as grit, and particles of steel evolved in grinders' or stonemasons' work, is known to produce diseases of the air-tubes, called by various names; and it is thus exceedingly probable that the increase of deaths by bronchitis is due to the smoke, dust, dirt, and other matters in the air of towns and workshops, where more people every year are doomed to breathe.

The practical inference is, that the most effectual means should be adopted to purge the air people breathe of all impurities; hence fires should be constructed to burn their smoke, streets should be kept clear, workshops be well ventilated.

MISCELLANEOUS.

Articulation Waves Recorded.—An idea has been started, and experiments made, by Mr. W. H. Barlow, F.R.S., relating to the

possibility of the human voice itself recording upon paper its own articulated sounds.

By making the air which passes from the mouth in speaking impinge on a stretched membrane, he found that this vibrated more or less according to the nature and intensity of the impulse, and by arranging a delicate apparatus he has succeeded in making articulation both visible and legible.

He has a small speaking-trumpet about four inches long, the end of which is about two inches in diameter, and has a thin skin stretched across. A light arm of aluminium carrying a pencil is pressed by a slight spring upon the centre of this membrane, and moving with it, marks on a travelling slip of paper each vibration—in fact, in a similar way to the sphygmograph.

On speaking into this trumpet it is noticed that each sound has its own particular character, and makes its own particular mark; but that what are called the explosive sounds, as *b*, *d*, *t*, make the strongest, and are thus more easily recognised. The diagrams which are formed are shown not to be fortuitous, as every time a word is repeated the mark on the paper is found to be nearly identical, and it is noticed that although there are instances in which considerable differences in sounds do not make much difference in the diagram, yet, as a rule, every change of sound or articulation produces a change in the diagram, and that there are pneumatic actions revealed which are imperceptible to ordinary observation.

Mr. Barlow has very lately explained his ideas on this subject, illustrated by the apparatus, before the Royal Society, as being at present in a crude state; but it is evident that they contain the germ of what may prove ultimately to be most valuable in science in everyday use. He is far from thinking that every letter of the alphabet can be recorded, but words can be so formed by phonetic symbols as to be read by persons who study them. In reading a book we do not read each particular letter in the words, but we take each word as it stands, a good deal as the Chinese words are taken—a symbol of an idea. It may be added that the difference in the action between whispered sounds and those spoken aloud is not so great as might have been expected, but that there is a curious difference in the markings of the same words when spoken by different individuals.—("Lancet," Aug. 8, 1874.)

The Philosophy of Voice, showing the right and wrong action of voice in speech and song.—(By Charles Lunn. Ballière, Tindall, and Cox, 1874.)

This volume is written with a view to explain the differences which are found between the statements of musicians and physiologists, and it is argued that voice-culture should be placed in its true position as a branch of medical rather than as a branch of musical art. All

error and weakness, and all defect in tone, each and all of these are *induced*, and can therefore be *removed*. The voice-trainer has to re-instate a control incidental to nature, which control has become weakened by the association of articulative speech with vocal utterance, causing (1) a horizontal, and (2) a perpendicular weakness—purely a physical disadjustment, in effect causing the sound to be feeble, dead, and only partially responsive to the will. We have two forces at work—air in motion (breath) and elastic obstruction. These forces balance each other. The author comments on the influence for evil caused by *articulate speech disturbing the balance between the wind force and the opposing force of reed resistance*. He then comments on the *use of the ventricles of the larynx* in inverting the force of ascending air in motion. There is within the larynx a double valve which is capable of controlling both the exit and the entrance of air; and the swelling out of the mucous membrane at the upper part of the larynx, by means of which the false cords are brought into coaptation throughout their whole length, is due to inflation of these ventricles of Morgagni beneath. The automatic cry of the infant—the first act after birth—is followed by automatic resistance against the rebound of the respiratory muscles, and this resistance drives the inhaled air into the most remote ramifications of the lungs, and thus furnishes the residual air.

The author believes that by a true use of voice chest-disease may be successfully warded off; because a greater consumption of carbon takes place, quickening circulation and hastening digestion. Purely as a question of health, the voice should be cultivated collaterally with the culture of words; both spoken words and vocal tone should grow up together, but each power should be taught in its specific mode. While medical men have often recommended the healthy exercise of song, they have never made their word of worth by troubling to go deeper into the question and deciding what is right work, what wrong.

In true song or speech the work of counterbalancing different degrees of pressure from below is done by the air being inverted and forming an eddy in the ventricles. This is proved by:—

1. The fact that under the conditions of true sound the ventricles can be felt to be puffed out, while with false sound they are not so felt; this accounts for the breadth of larynx in public singers.

2. A true vocalist does not feel as though he were forcing air out, but as though he were actually drawing breath in, and this even when emitting the most powerful sound; in false emission it is not so; the point of resistance breaking loose makes him feel as though he were running after a note to catch it.

3. A true vocalist *knows* but does not *feel* he is singing; consciousness is the sole guide.

4. Under such conditions the sound can be sustained at full force a considerable time, showing the economy of nature; and the sound can be increased inversely to the quantity of air held in the reservoir below, this, too, without studying the crescendo and diminuendo.

In false song or false speech, however, the instrument of music is only used to partially catch the air in transit, and owing to this artificial mode of use it cannot resist the full thoracic force.

Three axioms are adduced as the foundation of a true system of voice-training:—

1. The ventricles of Morgagni become inflated by holding the breath; the air catching in them causes the larynx to rise, and tightly closes the apertures; by ceasing to will to hold, an explosion of the condensed air takes place.

2. The existence of valvular action of the glottis.

3. The necessity for equal and full power—full power to strengthen debilitated muscles, equal power to ensure no change of state in the relationship of the parts.

The whole gist of study may be summed up thus: "Hold the breath on deep inflation; by ceasing to will to hold nature sets the instrument in accurate action; let the involuntary contractile pressure continue the sound, and by repeated use in such manner the instrument will in time become automatic." Dr. Wyllie's explanation of the use of the false cords and the ventricles gives the true solution to the right use of voice, the air in the ventricles acting somewhat analogously to that which a trumpet-player imprisons in his cheeks.

New Inhaler for Nitrite of Amyl.—Mr. Charles J. Smith has devised an inhaler for the administration of nitrite of amyl. It is made by Messrs. Krohne and Seseman, and is fully described in "The Lancet," Jan. 20, 1874.

Exercise for the Heart.—Dr. Henry MacCormac, in a paper entitled "Strages Medicorum; or Exercises for the Heart," amplifies the maxim that just as the moral heart dwindles and declines by reason of insufficing scope and effort, so does the physical heart. Ordinary cardiac action is passive, and needs to be supplemented by increased periodic effort in order effectively to promote the circulation and aeration of the blood. It is also further required in order to prevent the heart itself from sinking into languor and relative inaction, as well as to equip it for any sudden encounter or unwonted demand upon its energies.

The malady which results from the want of this increased effort is a purely functional one; it is productive of much distress, often of real danger. The action of the heart has become enfeebled; is no longer normal; and the condition occurs which is frequently spoken of as fatty heart, weak heart, feeble heart, flaccid heart. Too long sustained mental effort, coupled with insufficient bodily effort, and there-

fore insufficient heart's action, and inordinate personal indulgence, are the chief agents in the production of this functional cardiac insufficiency.

The fact that medical men are particularly prone to the condition is considered by the author to justify the above heading. Insufficient general action leads to insufficient cardiac action, and insufficient cardiac action leads to death itself. The weak, the fatty, and the flabby heart, is the especial malady of indolent persons; it does not assail the hard-working, the abstinent, and the poor. Exercise for the heart is deserving of the most careful attention: every species of guarded prolonged muscular effort is useful, but temperate walking is recommended as the best for those who labour under functional heart affection. Exercise develops and strengthens the cardiac muscle, aerates the blood, and prevents undue development of fat.—(“Dublin Jour. of Med. Science,” July, 1874.)

Heart-Disease in Pregnant Women.—Dr. Michel Peter, at the meeting of the British Medical Association for 1874, read a paper on accidents that may happen to pregnant women suffering from disease of the heart, and the facts adduced led to the following conclusions:—

1. A woman diseased at the heart should not be a mother.
2. If she become pregnant, the physician must attentively survey her respiratory functions, and intervene energetically as soon as pulmonary disorders begin.
3. If the woman be safely delivered, she must not nurse her child, in order not to fatigue more her diseased heart.
4. Reciprocally, when a pregnant woman suffers towards the middle of her pregnancy very severe pulmonary disorders, or when she miscarries by them, the physician must auscult her heart, and perhaps he will thus discover disease till then unknown or mistaken.—(“Brit. Med. Jour.,” Aug. 29, 1874.)

Pneumatic Aspirator.—Drs. Cayley and Sansom report a number of cases of thoracic disease illustrating the use of the pneumatic aspirator. The cases show the great value of the instrument in the treatment of empyema and other pleuritic effusions. The duration of cases of pleuritic effusion is very much shortened, and in empyema it is not now necessary to establish fistulous openings; complete recovery often takes place after two or three tapplings.

An exploratory puncture for diagnostic purposes may sometimes be of use, more particularly in cases where, with left pleuritic effusion, no displacement of the heart is manifest.—(“Med. Times and Gaz.,” July 11, 1874.)

Continuous Self-Registering Thermometer.—Mr. Harrison Cripps, at a meeting of the Royal Society, exhibited a working model of a continuous self-registering thermometer. The instrument is divided into two portions:—1. The thermometer, which marks the degrees. 2. The clock-work, which indicates the hours and minutes.

The thermometer consists of a tube coiled round a bulb, the whole being supported on pivots, working between two parallel uprights. The bulb is filled with spirit; the tube is partially filled with mercury. Contraction of the spirit on cooling alters the centre of gravity, and causes rotation of the conjoined bulb and tube on the supporting pivots. By this arrangement the two forces, heat and gravity, acting in contrary directions, generate a steady rotatory movement.— ("Proc. Royal Soc.," Vol. xxiii., No. 161.)

The Medical Adviser in Life Assurance.—By Edward Henry Sieveking, M.D. (Churchill, 1874.)

The author alludes to the hereditary transmission of phthisis. The Brompton Hospital statistics show that hereditary tendency can be traced in 24 per cent. of the cases. Dr. Fuller, who considered the existence of the disease in either grandparent of a consumptive as evidence of transmission, gives a percentage of 43·6; and if uncles and aunts are included the proportion rises to 59·5 per cent.

The phthisical taint shows itself in other ways than in the occurrence of tubercular disease; hence the prevalence in phthisical families of bronchitis and pleuro-pneumonia.

The proclivity to phthisis commences at puberty, and occurs with uniform frequency up to the decline of life. After fifty the proportion of deaths from phthisis to those living is nearly the same as at an earlier period. In childhood the tubercular disposition shows itself rather in the brain and abdomen than in the pulmonary tissues.

Supposing we have a candidate for insurance who presents an unexceptionable personal history, how are we to rate various influences of an hereditary character connected with phthisis? It seems a fair rule to add seven years where a father, and ten where the mother is shown to have been consumptive. The usage of offices is, we believe, to disregard the death of one collateral from phthisis. Certainly where two of the same generation have succumbed to the disease, an addition of seven or ten years is necessary. If both the parents have died consumptive, hazardous rates of twenty or twenty-five years only can be admitted, and it is a question whether such lives ought not to be absolutely rejected.

The Registrar-General's Report of 1871 gives 161,480 as the annual mortality from *thoracic disease*, this amounts to nearly one-third of the total mortality; of these 26,219 suffered from disease of the heart and great vessels, 53,376 succumbed to phthisis, and 81,825 to other pulmonary affections.

1. Diseases of the heart and great vessels. To this class about one-sixth of the total mortality is due. The large majority of heart-diseases in this country are due to the rheumatic poison, which, in the form of rheumatic fever or acute rheumatic arthritis is chiefly prevalent during the second and third decennia of life; and though it

often passes off without physical evidence, at the time, of inflammation of the heart or of its membranes, it rarely leaves them altogether unscathed. Cases are common in which, although no peri- or endocarditis has been detected during the fever, cardiac lesions can be traced, later in life, to its occurrence. Moreover, the rheumatic poison is apt to cause a recurrence of the disease in the same individual, and no immunity is afforded by an attack. The report of rheumatic fever having occurred in a candidate for assurance, is therefore always to be regarded with consideration, and should direct special attention to the heart. A single well-marked attack, in which the patient has been confined to bed for six weeks or more, justifies an addition of about seven years; if the attack has recurred, and especially if an hereditary tendency to rheumatism also exists, a higher rate is proper, even if the heart shows no indication of valve lesion. Co-existent defect in the valves, as demonstrated by the ear and other physical signs justifies the rejection of the life, or its acceptance only at what would be considered by most persons a prohibitory rate.

Fatty degeneration of the heart does not always offer physical signs of a marked character. A premature arcus senilis, though not a safe guide, is sometimes found associated with cardiac softening, and at any rate manifests early senility, which may diminish the applicant's chances of life. All indications of a feeble and irregular circulation, as shown by occasional syncope, excited, and easily excitable pulse, palpitation, pulsatile feelings in different parts of the body, are of more or less importance, proportionate to their severity and frequency. The intermittent pulse is generally associated with imperfect nutrition and innervation of the heart, and is a sign or forerunner of fatty degeneration of the organ, angina, ossification of the arteries, and analogous conditions. We should be inclined to regard the irregular and remittent pulse as even more significant of malnutrition of the heart and imperfect circulation than any other condition, and sufficient to justify rejection. Excessive slowness of the pulse, *i.e.*, a pulse below 60, is rarely met with unassociated with serious disease.

2. *Phthisis*.—This disease is responsible for two-sixths of the mortality from thoracic disease, or one-ninth of the mortality from all causes. In a person in the slightest degree predisposed, any debilitating influence, especially if it interferes with the due oxygenation of the blood, and induces pulmonary congestion, is likely to give rise to phthisis. Scrofula in early life, protracted dyspepsia, repeated catarrh, imperfect convalescence from continued and exanthematous fevers, indoor occupation of all kinds, especially if carried on in a cramped posture and in a close heated atmosphere, an occupation entailing the inhalation of dust, grit, or metallic particles, are among

the numerous causes that lead up to confirmed consumption in one or other of its varieties. Anxiety, supervening upon any of these influences, imperfect food, intemperance, though not in themselves adequate to give rise to the deposit of tubercle, add much to the power of the previously-mentioned incitamenta mali. In the female, catamenial derangement and gastric ulceration are to be specially regarded as forerunners of this malady.

The more important evidences, suggesting the existence of a phthisical tendency are:—*a.* The habitually quick pulse. *b.* The loss of flesh. *c.* The occurrence of hæmoptysis. Unless there is positive evidence either that the hæmoptysis was not hæmoptysis at all, but hæmatemesis, or that it really did proceed from the nasi-oral or faucial cavities, it is safe to act upon the assumption that spitting of blood was attributable to pulmonary mischief, and a forerunner or accompaniment of tubercular deposit.

CANADA.

(Report by R. P. HOWARD, M.D., etc., Prof. of the Theory and Practice of Medicine, McGill College, Montreal.)

During the year ending June 1st, 1875, very few papers have been written in Canada on affections of the "thoracic organs and their immediate associates." Our population is yet small, and the number of medical periodicals published amongst us but few.

In the "Canada Medical Record," for May, 1874, Dr. R. A. Kennedy, Professor of Anatomy, University of Bishop's College, reports a case of "membranous croup," in a child four years of age, in which after the employment of emetics and fomentations to the throat, tracheotomy was performed within about thirty hours from the invasion of the disease. Much relief was afforded for two days, after which the fever and dyspnoea increased, dulness on percussion was found "over lower part of both lungs," and death ensued in seventy-two hours after the artificial opening had been made. The post-mortem examination was limited to the state of the throat. "Shreds of false membrane were still adherent to the trachea, and the glottis and epiglottis were swollen and thickened."

In the same number of the periodical just quoted, Dr. F. W. Campbell, Professor of Physiology, University of Bishop's College, relates "three cases of membranous croup," in one of which tracheotomy was performed; they all ended fatally.

Case 1. Child two and a-half years old. At outset treated by a warm bath, and the lime vapour bath and emetics; later, cold applications were made to the throat, sulphate of copper emetics administered, and an expectorant mixture containing bromide and iodide of potassium and belladonna. These measures afforded much relief for a few hours, but the dyspnoea, etc., soon returned, and the child died early on the second day of the illness.

Case 2. The child's age is not given. It had only a croupal cough when first seen, for which syr. scillæ c. vinum ipecac. and potass. bromide were prescribed. An attack of croup appears to have set in the night following. Early the next morning Dr. C. gave an ipecac. emetic, applied fomentations to the throat, and rendered the air of the room moist, but the child died the same day at 9.30 p.m., *i.e.*, in twenty-four hours after the first paroxysm of croupal dyspnoea.

Case 3. A child aged two years, seen first on the third day of a croupal cough, and treated by the above mixture, a moist atmosphere, mustard, and subsequently poultices to the throat. The symptoms threatening a fatal issue, tracheotomy was performed upon the fourth day of the illness. Relief was observed for one day; convulsions then supervened, and death followed in twenty-eight or thirty hours after the operation. No post-mortem examination having been made in these cases, the existence of false membrane in the air passages was not proved.

The "Canada Lancet," May, 1874, contains the report of a case by A. B. Atherton, M.D., in which a fragment of "a jet cross" entered the larynx, and appeared to have obstructed the right bronchus. Next day, however, the feeble respiration over the left lung indicated that the foreign body had changed its site, and engaged the left bronchus. Tracheotomy was performed on the sixth day, "the margins of the wound were kept apart by wire-retractors, while the patient was turned partly on his face, with the lower part of the trunk raised, and percussion made with the flat of the hand on the back." Nothing was seen of the foreign body, however. In ten hours after the operation, the left side of the chest expanded as much as the right. The patient passed at stool the foreign body, 29 hours after the operation. The reporter supposes that the piece of jet had ulcerated through the trachea into the œsophagus, and found its way into the bowels; but it is not improbable that it slipped into the pharynx while the patient's trunk was raised and percussed in the hope that it might escape through the wound made in the trachea.

In the "Canada Medical and Surgical Journal," for June, 1874, Dr. Ross, Professor of Clinical Medicine, McGill University, reports a case of syphilitic disease of the larynx which was prevented by laryngotomy from causing death. The patient had had laryngeal symptoms four months before the operation, which had yielded to treatment. When re-admitted on 4th April, 1874, the most prominent symptoms were stridor during inspiration and expiration, indistinct weak voice, slight cough, with thick glairy expectoration, a small, feeble pulse; indurated and enlarged inguinal glands, and other signs of constitutional syphilis. (On the 10th, the laryngoscopic examination showed the parts above the vocal cords thickened, corrugated, and irregularly roughened, not congested; no œdema, or other evidence of acute laryngitis; both vocal cords extensively ulcerated, and presenting a series of uneven jagged notches; they approximated very imperfectly during attempted phonation. On the 13th, dyspnoea was so great, that asphyxia was imminent; face was blue, extremities cold; pulse 124, small, and irregular; pupils dilated; a considerable interval between inspiration and expiration. On placing the woman in posi-

tion for opening the larynx, "the heart's action stopped, and she lost all sensibility." Dr. Ross opened the crico-thyroid space, introduced a canula, and practised artificial respiration; consciousness soon returned, and the patient from that moment was relieved of dyspnœa, and subsequently left the hospital wearing the canula, but much improved in health under the use of iodide of potassium and iodide iron.

In the February (1875) number of the last-mentioned journal Dr. Drake, lately Professor of the Institutes of Medicine, McGill University, publishes a case of pleurisy and effusion in a man of twenty-seven. When admitted to hospital he had been three weeks ill with "chills, headache, fever, and considerable dyspnœa, which increased very much when he attempted to lie on the left side. The physical examination justified the diagnosis of extensive effusion into left pleura. During six days he was treated by iodide and acetate of potass.—a blister was applied, and for three of those days an Addison's pill was given three times a day in addition to the other remedies. On the eighth day after admission the chest was aspirated, and $7\frac{1}{2}$ pints of highly albuminous fluid evacuated. No marked improvement followed the tapping; indeed the temperature rose $\frac{3}{4}^{\circ}$ F. for two days. During the third night after the operation pain attacked the affected lung; on the fifth day fine crepitation at the base, and a 'few moist râles at the apex' of left lung were noted, together with an increase of temperature and of respirations. After this there was a gradual improvement in some of the symptoms; the effusion did not return, but "the dulness and moist râles on the left side" continued, and when he left the hospital, three weeks after the operation, the average morning temp. was 100° to 102° F., and the evening 102° to $103\frac{1}{2}^{\circ}$ F.

The "Canada Lancet," May, 1875, p. 255, contains "Notes of a case of empyema—fluid discharged by expectoration, recovery." By Bernard McIver, M.D.—A young man, apparently *in extremis*, had ammonia held to his nostrils, which excited sudden cough, when he instantly expectorated about a quart of offensive pus. Within twenty-four hours coma, which had existed for some days, passed off, and a general anasarca, which was present, gradually disappeared; at the end of a month expectoration had ceased. The notes of the case are so meagre, that much of its value is lost.

The only other article upon thoracic disease published during the year, was in the "Canada Medical and Surgical Journal," Sept., 1874. As it cannot well be condensed, and is not long, and contains some original observations based upon clinical facts, the following extracts are given:—

Objections to some of the recent views upon the Pathology of Tubercle and Pulmonary Consumption: being the Address in Medicine read before

the Canadian Medical Association, on the 5th August. By R. P. Howard, M.D.

Dr. Howard says:—" . . . Perhaps the most startling pathological doctrine advanced in modern times on respectable authority is that miliary tubercle and so-called tuberculous infiltration are due to the absorption of the *caseous* detritus of the products of some pre-existing local disease, as a pleurisy, pneumonia, scrofulous gland, diseased bone, abscess, fistula, etc.—that tuberculosis is *either* an *absorption* disease nearly allied to pyæmia (Waldenburg), or a specific *infectious* disease like small-pox (Burdon-Sanderson.)

"More or less closely connected with this new doctrine, but not necessarily arising out of it, is the old thesis revived in a modified form, and because of his able advocacy of it, usually associated with Niemeyer's name, to the effect that the ordinary form of chronic phthisis pulmonum is of inflammatory origin, and due to a so-called "*caseous pneumonia*," which may be induced by a *catarrhal* bronchitis or the local irritation of blood poured into the bronchial cells in pulmonary hæmorrhage.

"As these views are of overwhelming importance, in view of the practical consequences which must inevitably follow their establishment, I venture to raise some objections to them for the consideration of the members of this Association.

"The *absorption* theory of tubercle rests mainly upon the interesting experiments initiated by Villemin in 1865, and subsequently confirmed and extended by Andrew Clarke, Burdon-Sanderson, Wilson Fox, Waldenburg, Cohnheim, and others. These experiments revealed the important fact that in the guinea-pig, and in some other animals, the inoculation of tubercle, pus, putrid muscle, etc., of tubercle which had laid several months in alcohol, or had been submitted to the action of fuming nitric acid, or of carbolic acid, will produce *primary* lesions at the site of inoculation and *secondary* lesions in the internal organs, which appear to be identical with tubercle. Even the local irritation of a seton of cotton or of silver wire will produce similar effects in the guinea-pig.

"Now, lest these inoculation experiments upon animals should be assumed to have proved more than they have—let it be borne in mind—1, that every animal has its own special organization and probably its own special aptitudes as regards diseased action; and 2, that it has yet to be shown that the inoculation of tubercle or other material is capable of producing lesions identical with tubercle in the several organs of the human body.

"3. Clinical experience does not show that the irritation of setons or issues is causative of tuberculous disease in man.

"4. Local suppuration, when productive of secondary remote lesions in various parts of the human body tends to develop pyæmia, with its

peculiar metastatic deposits, or amyloid disease of the viscera—not, I believe, tuberculous disease. I regard this fact as strongly opposed to the inoculation doctrine. The very condition, chronic suppuration, as seen in necrosis, or caries for example, and which resembles so closely the action of a seton, is the very condition which is recognized as the cause of amyloid disease of the liver, spleen and other organs.

"5. It is asserted that pleurisy and especially chronic pleurisy frequently causes consumption.

"Now Dr. Blakiston watched for some years the course of 79 cases of chronic pleurisy with the following results:—10 were lost sight of—of 16 it was only known that they were living—and of the remaining 53 *not one* had become phthisical. Dr. Payne-Cotton's and Dr. Flint's experience is opposed to the view in question, and coincides with Blakiston's. M. Aran and M. Siredey both contend that the autopsies of empyemic subjects show that tubercle is more frequently absent than one might expect.

"Dr. A. Attimont's researches give 80 definite cures out of 130 cases of empyema, many of which moreover had been watched for a long time. And in 29 autopsies of empyema tubercles were absent 20 times, and present only 9 times. If so many persons recovered perfectly from empyema, and if tubercle was found but 9 times in 29 cases, it certainly does not appear probable that empyema can be a very frequent cause of pulmonary tubercle.

"When tubercle appears to have followed an empyema or a pleurisy, several explanations may reasonably be offered of the relationship. Tubercles may have existed in the lungs or pleura at the time of the invasion of the inflammation—or, as was admitted by Trousseau, a predisposition may have existed which the local inflammation developed into actual disease.

"6. If there are not sufficient grounds for asserting that the absorption of the products of pleurisy causes the formation of tubercle, what about other local inflammatory affections?

"Much importance cannot be reasonably attached to the statement of Troltsch, that purulent otitis not rarely precedes tuberculous meningitis and even general tuberculosis, when we reflect how common an affection otorrhœa is in childhood.

"7. It has been claimed that *fistula in ano* may initiate tubercle. But let it be noted that according to Pollock, and such has been my own experience, "the phthisis is the earliest affection," although it "occasionally happens that the fistula precedes all symptoms of consumption." Indeed, the same authority remarks that "in the larger proportion of cases it [the fistula] is found in the *third* stage, next to this in the second.

"Now, if the absorption of corpuscular products from abscesses, ulcers, etc., may induce tuberculous disease, how comes it that a *fistula*

in ano is, according to Pollock, *never associated with acute phthisis*? the very variety in which the tubercle par excellence (miliary tubercle) of Virchow is present? And that the existence of anal fistula in chronic consumption appears to *prolong* the duration of the pulmonary disease, instead of causing it to extend and take an active course through the constant absorption of the inflammatory products?

"8. Disease of the *bones* is regarded as one of the pathological conditions likely to produce tuberculous disease.

"To show that disease of the bone is far from constantly or even frequently a cause of consumption, I would cite M. Coulon, who in 130 children suffering from scrofulous disease of bone found only three that had phthisis.

"Mr. J. W. Hayward, writing upon another subject, gives some facts which appear to me corroborative of the view I am defending. 'Of 85 consecutive cases admitted into the hospital for sick children for various tubercular affections, in only *one* was there any bone or joint disease.' 'Of 134 cases of chronic bone or joint disease of which' he 'took notes in the Hospital for Sick Children, in only 9 was there any sign of tuberculosis, and but 17 displayed other signs of scrofula.'

"Of 790 cases of bone and joint disease in adults and children admitted into St. George's Hospital, disease existed in other parts in 80 instances only, or in about ten per cent., and it may be safely assumed that the co-existing disease was not in every instance tuberculous.

"9. There is one affection especially characterised by a tendency to caseous degeneration of the lymphatic glands which, because of its frequency, ought, if the absorption theory be true, to be found very frequently associated with consumption. What are the facts?

"Mr. B. Phillips, taking enlarged glands with sinuous ulcerations and enlarged joints as diagnostic of scrofula, found scars resulting from scrofulous abscesses in only 7 out of 352 cases of phthisis. Dr. E. Smith, in 1000 cases of consumption, found that only 12.8 per cent. had suffered from enlarged glands.

"Of 1,973 cases examined at Brompton Hospital only 3.8 per cent. had scrofula.

"Dr. Flint writes, 'I have collected a number of cases in which young and middle aged persons presenting the characteristic cicatrices on the neck were free from tuberculous disease of the lungs; and on the other hand, it is extremely rare to find these cicatrices in persons who are affected with pulmonary tuberculosis.' Such also is my own experience.

"But the supporters of the doctrine that tubercle results from the absorption of caseous products rely also very much upon the fact that the able advocate of the theory, Fuhle, having carefully examined 23

cases of acute tuberculosis found in all but one or two masses of caseous matter, which he assumes to have preceded the tubercle.

"In reply it may be urged that Wilson Fox has always found the histological elements of tubercle in the walls of the air-cells when caseation was present. That Dr. Schüppel, writing in 1872 upon tuberculous disease of the lymphatic glands, concluded that in all cases, caseous scrofulous glands are the seat of true tubercles, and that the caseation is due to the necrosis of the tubercle. That Dr. L. Thaon, writing in 1873, throws great doubt on the existence of any true cheesy inflammation independently of the tuberculous granulations, and concludes that cheesy inflammations are as much manifestations of tuberculosis as the grey granulations (miliary tubercles) themselves; a conclusion almost the same as that entertained by Wilson Fox. And that quite recently, Dr. Friedlander has stated that 'though caseous deposits are found in nearly all cases of disseminated tuberculosis; in some a most careful examination has failed to detect them. And moreover, such deposits are so common that they are found in the bodies of 50 per cent. of all adults who have died from any cause. And though the proportion of such deposits is much greater in cases of disseminated tuberculosis, it must be remembered that a very large number of these deposits are actually the result of local tuberculosis, all caseous glands for example * * * and that we have quite as much right to consider that certain forms of local tuberculosis dispose, even after their relative healing, to the origination of disseminated tuberculosis, as to assume with Buhl that this is due to caseous infection.'

"Having in my own opinion, shown that the absorption-theory of the production of tubercle suggested by the inoculation experiments upon animals is not borne out by clinical experience, or rendered probable by unanimity of opinion amongst histological authorities, I turn to the other doctrine that the ordinary form of chronic pulmonary consumption is of inflammatory origin and due to pneumonia.

"This is indeed a question beset with difficulties and upon which the ablest pathologists take sides, and I therefore claim indulgence while venturing to speak upon the subject.

"Most clinical physicians will admit, I doubt not, that ordinary acute (croupal) pneumonia, in the great majority of cases, runs a short course, its products are completely removed, and no ulterior damage follows. It is admitted that occasionally, though but rarely, this form of pneumonia induces abscesses or even gangrene of the organ, but even then the disease can be distinguished from ordinary chronic phthisis.

"But it is catarrhal pneumonia that the new school of pathologists, ably represented by Niemeyer, Waldenburg, Buhl, and others assert, originates and constitutes the most frequent form of chronic consump-

tion, and that miliary tubercle has nothing to do with it, and is very frequently absent.

"Now I submit that this question cannot, in the present state of conflicting opinions and observations amongst histologists, be settled upon histological evidence. Need I remind you of the discordant views expressed by the able men who took part in the debate upon tubercle in the Pathological Society of London, last year? The outcome of that discussion was, in my opinion, that the microscope does not enable us to distinguish tubercle from the products of lobular pneumonia and other products which may closely resemble it. Nay, histologists are not agreed as to the histological characters of tubercle itself; and I have before mentioned that they differ as to the relationship existing between tubercle and caseous masses in the lungs; some contending that caseous material may exist without tubercle, but that tubercle results from the absorption of caseous products—others, that wherever caseous materials are present in the lungs, tubercle co-exists; and others, that caseous inflammations are as much manifestations of tuberculosis as miliary tubercle itself.

"Histological evidence, then, being unsatisfactory, we appeal to clinical.

"After what has been said, it may be asserted with confidence, that in a given case unless the physical signs, the symptoms, and the whole clinical history during life were those of catarrhal pneumonia, the existence of caseous masses in the lungs could not fairly be taken as proof that the disease was pneumonic and not tuberculous.

"Now the clinical features of catarrhal pneumonia differ from those of ordinary chronic phthisis.

"Thus—*a*. Rokitsanski says that catarrhal pneumonia affects children chiefly, and is 'of rare occurrence in adult life;' and Niemeyer himself observes, that 'we may very properly call it a disease of childhood.' The converse is true of chronic phthisis; it but rarely occurs in children, it obtains pre-eminently in adult life.

"*b*. The chronic form of catarrhal pneumonia is so infrequent that Buhl has lately questioned its existence, and it is met with chiefly, almost solely, in connection with measles, whooping-cough, and capillary bronchitis. The same cannot be affirmed of chronic phthisis.

"*c*. While the statement that a well developed paroxysmal cough accompanied in a few days by expectoration, or at least by the evidence of considerable secretion from the broncho-pulmonary membrane, and plainly explained by the physical signs of bronchitis, is almost invariably true of catarrhal-pneumonia—the statement that short cough or a mere hem, unaccompanied by expectoration for weeks, and either not accounted for by physical signs at all, or by physical signs differing in several respects from those of bronchitis

and catarrhal pneumonia, is equally true as a general rule of chronic phthisis.

"*d.* The physical signs of chronic consumption in the early stage are not those of catarrhal pneumonia. Thus in the former there shall exist for weeks and even months simply feeble respiration or harsh respiration with prolonged expiration and a shade of diminished percussion resonance at the apex of one lung without either whistling or bubbling râles—indeed these may never ensue; and the other apex and the bases of the lungs shall present no signs of disease. Bronchopneumonia on the other hand, is preceded by the physical signs of bronchitis—the signs are distributed more or less symmetrically over both lungs, but predominate at the bases of those organs.

"In view of the fact that histological examination cannot be relied upon, and that clinical evidence does not support the statement that either croupal or catarrhal pneumonia is apt to terminate in or constitute chronic phthisis, it may be concluded that Niemeyer was wrong in maintaining that chronic phthisis usually originates in inflammation of the lungs.

"Admitting that ordinary lobar pneumonia sometimes ends in softening and ulceration of the lungs; that chronic bronchitis sometimes becomes complicated with induration, and that the indurated portions may slough or ulcerate; and that catarrhal pneumonia sometimes is followed by ulcerative destruction of the lungs; yet these issues are so infrequent relatively to the frequency of lobar pneumonia, chronic bronchitis, and catarrhal pneumonia respectively, that they cannot reasonably be regarded otherwise than as exceptional, and not as the natural course of these affections.

"The great fact which nearly all pathologists admit in some form, that a predisposition to pulmonary consumption, inherited or acquired, exists, and which has led to the disease being placed amongst the constitutional affections, seems to prove that there is something special and peculiar to the disease which distinguishes it from simple inflammation of the lungs, whether croupal or catarrhal.

"Burdon-Sanderson, while applying the facts of animal inoculation to the pathology of consumption in man, admits this latent phthisical bias. Virchow and his followers, including Niemeyer, admit that the predisposition to the so-called 'caseous' or 'scrofulous' pneumonia which the latter regards as the nature of most cases of chronic consumption, is 'inherited' as 'a vulnerable constitution.'

"It is this bias, or tendency in the individual, that conditionates the peculiar characters and course of the hyper-plastic, or the inflammatory process, whichever it is, that produces consumption; and its recognition is equivalent to the admission that the so-called 'caseous' or 'scrofulous pneumonia' of ordinary phthisis is peculiar, and essentially different from pneumonia occurring in persons

free from the inherited or acquired tendency in question. It is this inherited, or perhaps acquired, mode of vital action, this constitutional bias, that causes a bronchitis or a pneumonia to take on peculiarities which distinguish it from ordinary bronchitis or pneumonia. The bronchitis or pneumonia becomes the agency of developing the latent tendency in the individual. * * *

"I have attempted to show that it has not been proved, by an appeal either to histology or to clinical observation, that tubercle or consumption may be produced in the human subject by the absorption of caseous and other products of inflammation, as it appears capable of being in rabbits and other animals. And I have also attempted to show that clinical observation is opposed to the doctrine that ordinary chronic pulmonary consumption consists of simple pneumonia, either croupal or catarrhal, and that if the local process is inflammatory, it is at least of a peculiar or specific kind, and to be designated by a distinctive name, such as 'caseous,' or 'scrofulous,' or 'tuberculous.' It has its own symptoms and signs, runs its own peculiar course, recognizes its own causes and pathology, and demands its own therapeutics.

"But it does not follow that we may neglect, or treat as trivial, a bronchitis, an intestinal catarrh, a chronic abscess, or a fistula. Nor do I wish to deny that inflammation plays an important rôle in consumption, infiltrating the pulmonary substance in the neighbourhood of the tuberculous disease with materials prone to degenerate; but simply to maintain that the great majority of cases of chronic phthisis are *not* cases of, and do *not* originate in either lobar or broncho-pneumonia.

"Since this paper was read I have seen a notice of Buhl's recent monograph upon 'Inflammation of the Lungs, Tuberculosis, etc.' and have been much interested on observing that, contrary to the teachings of Niemeyer and his school, he states that neither croupous nor catarrhal pneumonia ever gives rise to phthisis. However, he has described a third form of pneumonia not previously mentioned by pathologists, under the name of 'Desquamative pneumonia,' the highest degree and the commonest form of which he calls 'caseous pneumonia,' and regards it as constituting one of the commonest forms of phthisis.

"Not only does Buhl agree with the writer that neither croupous nor catarrhal pneumonia passes into consumption, but in opposition to Niemeyer he denies that 'caseous pneumonia' ever originates in the catarrhal or croupous form, a view which is in harmony with the tenor of this address. Of course it remains to be seen whether pathologists will accept and confirm the existence of a third variety of pneumonia—the 'desquamative'—distinct and different from the croupal and catarrhal forms."

DENMARK AND SWEDEN.

(Report by JULIUS PETERSEN, M.D., Copenhagen.)

Dr. Bergmann ("Upsala Läkaræfö Förhandl," T. x., p. 87) enumerates the following as the principal advantages and disadvantages of Ajaccio as a health-resort. Its southerly portion (about 2° more to the south than the Riviera), and its consequently higher medium temperature; its sheltered site, at the inmost part of the shore of a long bay; its equable climate, due to the high medium temperature of the surrounding Mediterranean Sea; its uncommonly clear sky and freeness from rain and mist—greater than any known European climatic station—and its especially favourable spring. Besides these major advantages, Ajaccio shows some smaller ones that are not to be underrated, as the absence of mud on the roads, caused by the mountains being of granite; the ease with which they are dried up after rain; and finally, in comparison with Sicily, the cheapness of the place, its freedom from robbers and mosquitos. Patients who want to reside there all the year round can easily reach the mountains in the hot season. The disadvantages are the difficulty of getting at it, the prevalence of intermittent fever, as in Sicily, and the strong sunlight, which acts as a powerful stimulant on some patients. The mode of living is simple; luxuries and amusements are few or none.

Dr. Vald. Rasmussen writes on *Davos as a Climatic Station for Consumptive Patients* ("Hospitals Tidende," 1874, p. 765):—

He specially points out the necessity for individualising cases, and particularly of considering the climatic relations under which each consumptive patient has acquired his disease. He does not think it right to apply the experiences of one country about consumptive patients to those in another. In an unsettled climate like the Danish, the home treatment must, particularly in the early stages, aim at hardening the patients in a cautious but assiduous way; and this is certainly of not less importance where the patient is to spend some time in a sanatory station. Therefore, the application of cold air, and other hardening influences, is very much valued by Dr. Rasmussen; and the results of such climatic treatment are, in his experience, particularly successful at Davos—this place being situated under much more favourable climatic circumstances than Görbersdorf, where the hardening method by Brehmer has been systematized.

Dr. Rasmussen points out that the temperature during winter is considerably below that of Copenhagen, yet it is felt less; partly because of the nearly uninterrupted calmness of the air, partly because of the clear sky, which allows the sun to act with its full power. And it is the winter residence that acts most favourably on consumptive people. The treatment consists principally of exposing the patient as much as possible to the open air, feeding him with strong, but easily digestible food, and applying the cold douche. The author recommends Davos particularly to individuals with an hereditary disposition to phthisis, or even with developed phthisical appearance, but before the disease has quite declared itself. Yet he believes that even individuals with declared phthisis, if only the disease has developed itself slowly, and principally has shown itself by local symptoms in the upper parts of the lungs, can be completely cured; in favour of which opinion, he relates a case within his own experience. Another case is communicated, to prove that even progressed symptoms have been considerably improved at Davos, particularly by a stay of several years. On the other hand, he considers Davos to be contra-indicated, and even more dangerous than any other climatic station, when colliquative diarrhoea and copious debilitating night-sweats are present. In the same way, he disapproves of Davos in chronic bronchitis with severe dyspnoea, and in affections of the larynx.

Dr. Leerbech, writing on *Mountain Sanatory Stations, and especially Davos* ("Ugeskrift for Læger," April, 1875.), complains of the non-existence of meteorological observations at these stations, which would lead to more accurate indications of their action, especially as the reports of the resident physicians in these places are often rather coloured. For this reason it is desirable that impartial and distinguished medical men should try to acquire correct notions about these stations in order to advise other practitioners where to send their patients. He argues against Dr. Rasmussen's article about Davos, and tries critically to prove that Dr. Rasmussen has not succeeded in escaping the aforesaid difficulties. He mentions particularly that Dr. Rasmussen's stay has not been long enough to allow him to speak of his own experience; that the climatological particulars, which he has found in an abstract of the experiences of the "Schweizerische Meteorolog. Centralanstalt," are not to be quite relied upon. The two cases which Dr. Rasmussen relates, to prove the surprising results of a stay in Davos, are, according to Dr. Leerbech, of slight importance. He relates Dr. Redtel's severe judgment about Davos, in "*Deutsche Archiv*," as an instance how much impartial physicians can differ in their opinion. Dr. Leerbech himself has no especial personal experience of Davos, but has received a most unfavourable impression of the place and of the

medical treatment there. He then lays stress upon the dangers connected with a stay in Davos as by far surpassing the advantages. Finally he treats of the question of mountain stations in general. He considers the abundant use of fresh air as the one essential thing in the treatment of phthisis, and that this is the only important point in mountain therapeutics.

Dr. Bränniche ("Forhandlinger ved de skandin. Naturforsk," 11 Måd, 1874).—Writes on the *Inverse-daily Type of Temperature, as a Symptom of Miliary Tuberculosis*.

In an earlier article (in the "Hospitals-Tidende," xv., p. 65) he has drawn attention to the frequent occurrence of a *higher morning and lower evening temperature* in miliary tuberculosis, both when complicating consumption, and when occurring alone; and he regards this symptom as an important diagnostic of this disease; and the result is given of the observations made in his hospital practice for the year 1872. In 41 post mortem examinations of consumptive patients (22 males, 19 females), 53·7 per cent. had shown the "typus inversus." Of the 22 males 45 per cent., of the 19 females 68·4 per cent. had shown this type. Of the 41 patients, 30 suffered from uncomplicated consumption, without tubercles, and in 38·4 per cent. of these the "typus inversus" occurred; 28 were complicated with miliary tuberculosis, and in 70·8 per cent. of these the "typus inversus" was found (in 54·5 per cent. of the males, and in 84·6 per cent. of the females); 10 cases of uncomplicated miliary tuberculosis occurred; and in not less than 9 of these the peculiar type was observed.

Dr. Bergmann, writing on the *etiology of pneumonia and bronchial catarrh* ("Upsala Läkarsförh.," T. x.), compares the meteorological observations with the medical statistics in the Mälar provinces to prove the connection between them as to pneumonia and bronchial catarrh. In the medical registration of such cases, the day on which the disease began is regularly noted, by which the above enquiry is facilitated. The results are about as follows:—With regard to the effect of temperature, the author tries to prove that the low range (yet not extreme cold) is most apt to cause both the above-named diseases; between which, and the degree of moisture, no very distinct connection has been discovered. The contrary may be said of the atmospheric pressure; a low (minimum) pressure having been found regularly to co-exist with the frequent occurrence of these diseases. But as these atmospheric influences are never alone, the author has tried to follow up the effects of their combined influence. In this respect the so-called "burrask" has attracted his particular attention, as this depends upon a minimum in the atmospheric pressure commonly followed by a certain moisture and low temperature. To this "burrask" the author attributes an especial action in producing the diseases mentioned. Sudden changes

of temperature have, contrary to the common opinion, showed no action upon them.

Dr. Jul. Petersen, writing on *English Phthisis Hospitals and Phthisis-therapeutics* ("Ugelshrift for Løger," Jan., 1875.), points out that, notwithstanding the oscillations in the pathology of consumption, the therapeutics of this disease have shown an important stability. That consumption wanted restorative treatment, has been an axiom since Hippocrates; English medicine always has been remarkable by particularly accentuating the restorative treatment, and has laid particular stress on fresh air; nay, very early has established hygienic hospitals. In comparing the French and English pathologico-anatomical schools from a therapeutical point of view, it is demonstrated that the French only introduced criticism and general disbelief into therapeutics, whilst the English worked quite as energetically on the further development of therapeutics as on pathology, as shown by Sir James Clark's work, "On the Influence of Climate." The author points out that this great physician not only studied sanitary stations in the old meaning of the word, but already had in view the general character of climatic therapeutics, and first and foremost accentuated the importance of clean and fresh air, whilst he considered contaminated air as the principal cause both of tuberculosis and scrofulosis. Dr. Petersen has visited the different hospitals for consumption in England, which he describes. He gives a view of the treatment adopted at Brompton, Victoria Park, and the Royal Chest Hospital, and points out particularly the strong diet. He speaks of the constant use of cod-liver oil, and of its newly-invented surrogates, particularly the pancreatic emulsions; but he thinks that it is the climato-dietetic treatment on which the English physicians rely; in this they appear to have acquiesced, and they do not put reliance in specifics, considering them, in opposition to the French school, as an illusion. In following out the development of the recent phthisis-therapeutics, the author shows that it could not be completely satisfied by hospitals situated in a large town like London, but necessitated their situation in a purer country, and sea air; and in this way the desire arose naturally to build them on the coast along the Channel, so famous for its excellent climate. He describes the sea-side consumption-establishments at Torquay and Bournemouth, both of which he admires; but at the same time he states that the new climatic-therapeutics will have to exact still more from a hospital for consumption; and especially, that the patients ought not to be collected in large compact buildings.

He points out the great influence which Miss Nightingale has had in this respect, both as to air, food, and the whole arrangements of hospitals. The result of the continued investigations of climato-dietetics has been, with regard to phthisis-therapeutics, the building of

the magnificent cottage-hospital at Ventnor, which the author regards as in every respect satisfactory—and that the whole therapeutic direction has here found its complete realization. He describes broadly the topography and climate of the country; the construction and arrangement of the hospital, as well as the manner in which the method of phthisis-therapeutics is carried out; this method he considers eminently satisfactory; in only one direction does he see a want in this as in the other hospitals for consumption, viz., that the hydro-therapeutics, methodically cultivated on the continent, is quite neglected. Finally it is proved that the English treatment of consumption is by no means an isolated therapeutical phenomenon, but in the closest connection with the strong general development of hygienic-therapeutics; which opinion is elucidated by a description of different convalescent hospitals, and the history of their development; namely, the Homes of Bournemouth, Torquay, and several other climatic institutions in the south of England. The author points out this therapeutical method as very important to the health of the poor population, and as so solidly founded, both on experience and rationality, that all other countries ought to do their best to imitate these English philanthropical endeavours.

Dr. Stabell ("Norsk Magazin for Logev," R. iii. T. iv.) observed in a man, of forty-five years, a regular asthma without emphysema. It had occurred after exertions during travelling, and after several chills; the common remedies (narcotics, emetics) failed, whilst the use of kalium iodatum gave remarkable but temporary relief.

Drs. Larsen and Winze ("Norsk Magazin," R. iii., T. iv.) each reported three cases of empyema successfully treated by incision and subsequent injection of a carbolic acid solution. Particular stress is laid on the after-treatment, viz., twice a day cleansing the pleural cavity with carbolic acid solution (from half to one per cent.) through a double tube of tin or an elastic catheter.

Dr. Braun ("Hygiea," April, 1875) has successfully treated empyema by injecting an antiseptic solution into the pleura after having opened it.

Dr. Westerberg ("Hygiea," December, 1874) performed transfusion with lamb's blood in a case of advanced phthisis. The patient was relieved, but died soon afterwards.

Dr. Kyellberg's "Annotations on Algeria," ("Upsale läkarskrif," Forh. T. ix.) is a topographic and climatic description of the locality.

The last part of Dr. Benzeliuss's (Stockholm) "Handbook of Laryngoscopy," Vol i., 1875, will soon be published, and will then require a detailed analysis.

Dr. Curt Wallis (Stockholm), writing on "*Davos as a Winter Station*," says that patients are sent to the South in winter to spend more time

in the open air, instead of being obliged to stay indoors in more northern climates.

Davos, in the opinion of Dr. Wallis, who passed the winter of 1874 in that place, does not, at first sight, deserve the fame of a salubrious winter station, as the middle temperature is much lower than in Sweden. But this refers to the temperature in the shade, whilst in the sun it is much higher than in the north. The difference between the temperature in the shade, and in the sun is often as much as 30°. Besides the greater number of sunny days, the high altitude of Davos permits very little moisture in the air, and consequently the absorption of heat by the atmosphere is very insignificant. The patient, therefore, can safely pass the greater part of the day in the open air. The air is generally calm, for the valley of Davos being surrounded by the Alps of 3,000 to 4,000 feet higher elevation than the valley, the wind-currents are much impeded in traversing the valley. Only north-east and south-east winds at times reach Davos, but on most days there is no wind whatever. All the buildings are so constructed, as to permit the patients to enjoy most of the sunny side, and even in coldest winter days to be under the effect of the sun's rays during four hours a-day. There are at times stormy and snowy days, when the patient must submit to stay indoors. These are dangerous times for the patients, and in this respect Davos is much inferior in its reputation as a winter station to the Mediterranean stations, owing to these snow-storms being of more frequency than in the latter places.

BRITISH GUIANA.

(*Report by* ALEXANDER GORDON, M.B., C.M., L.R.C.S.E., Medical Officer, Queenstown District, and Surgeon to H. M. County Gaol, Essequibo.)

British Guiana, the so-called "Magnificent Province," and the supposed "El Dorado" of the unfortunate Raleigh, is that part of the South American Continent which lies between the Coventyne River, in west longitude $56^{\circ} 58'$, and the Barina, in $60^{\circ} 20'$; and between 1° (or, as some have it, $3^{\circ} 30'$), and $8^{\circ} 40'$, north latitude.—(Duff.) Its area is estimated to be equal to about 76,000 square miles. It has a coast-line of over 200 miles, on which are situated the several large sugar and other estates, which produce the staple products of the colony—chiefly sugar; each estate, in consequence of its low lying position, having to be drained by canals and sluices, and to be embanked by extensive dams of mud.

The population of the colony, as per census returns, amounted in 1871 to 193,491; upwards of 100,000 of the inhabitants being employed as agricultural labourers.

Prior to 1834, the cultivation of the soil was carried on almost exclusively by slaves imported from Africa. On the 1st of August of that year, however, slavery was abolished throughout the British Possessions; and on the 1st of August, 1838, after what may be termed four years' apprenticeship training to civilisation, 82,824 people, who had hitherto not been encouraged to think or act *except under orders*, yet, whose better physical development had for years been the interested study of those who claimed them as their property, were suddenly thrown on their own resources, and compelled to think and act for themselves.

As slaves, their hygienic surroundings were matters of consideration, because of grave pecuniary interest to their masters. Habits of cleanliness, industry, and sobriety were enforced. An ample supply of nutritious food, and of clothing suitable to the climate was the rule; while unnecessary exposure to the deleterious influence of

the night air was, from motives which can readily be understood, the exception. Illicit, indiscriminate, and excessive sexual intercourse, too, was impossible on the majority of estates, the sexes, to a great extent, having been kept apart. Cohabitation, for obvious reasons, was encouraged only between healthy and robust adults.

The slaves of 1834 and their descendants are, to a great extent, our to-day's villagers and small farmers: and it is peculiarly interesting to the medical observer to note the effects on health and physique following in so short a time, on so radical a change in condition.

Idleness, with its usual concomitants, destitution, vice, and disease, is decimating the race. For forty years the governing powers have been unremitting in their endeavours to train them up good, useful, sober, and industrious citizens. But the blighting and degrading effects of slavery are evidently not to be stamped out in a generation. Forty years' training has proved but as a drop in the bucket; and, floundering as they still are, in the transition stage, the British Guiana negroes, if left entirely to themselves, would occupy but a sorry position in the "struggle for life."

From a life of enforced regularity, they have rushed into the opposite extreme. Their laziness is proverbial. Sheer want is as frequently as not their only inducing cause to work. "Feast, idle, and starve," is their motto. Nothing delights them more, in the midst of their filthy surroundings than to revel in excess of the vilest description. Rum is the very curse of the race, and every day the passion for it seems to become more deeply rooted and more widely spread. Men and women live together, for the most part, in a state of loose concubinage. Boys and girls, in many instances, are the parents of puny and diseased children before they should yet have ceased to be under immediate parental supervision and control. Is it to be wondered at that their physique has deteriorated?—that they should be dying out?

The effect of excess of any kind in a tropical climate becomes speedily serious. The effects of excess of all kinds, indulged in more and more every year, for a period of nearly two generations, I hope to be able to show presently, when we come to the consideration of "chest diseases" generally, and of phthisis in particular.

In consequence of the unwillingness of the negro to work, and the little dependence to be placed on his labour, immigration from the East Indies, China, and other places, was had recourse to after "emancipation," and up to the 30th of September, 1874, the number of people thus introduced as labourers, amounted to 180,421.

The owners of property are by law compelled to provide nourishment, medicines, medical attendance, and medical comforts during sickness for those under indenture to their plantations, and thus has

arisen the necessity for a gigantic hospital system throughout the colony.

Each plantation has its own hospital and staff; and each hospital must be approved of by the executive, and have accommodation for 15 beds before 100 immigrants can be allotted to the estate; and for 5 extra beds for every extra 100 immigrants, allotted after the first.

There are at present 121 "Estates' Hospitals" in the colony, having accommodation for 4,609 beds.

These hospitals are under the immediate medical supervision of 24 "district medical officers," appointed by Government.

As every indentured immigrant is required by law to go to hospital when sick, and as it is the duty of the medical attendant to enter in a case-book, kept for the purpose, the name, sex, age, disease, diet, and treatment prescribed in the case of each such patient, the "Register" of these cases, when well and accurately kept, proves invaluable as a source of information regarding the diseases to which this particular class of the community, which, in 1874, numbered 41,978, are liable.

Before entering into a detailed consideration of these diseases, however, and particularly of those affecting the chest, it may not be amiss here, to refer briefly to the climatology and meteorology of British Guiana.

The climate is exceedingly humid and warm. From the meteorological returns of Mr. Sandeman, of the Colonial Observatory, Georgetown, between the years 1846 and 1856, it appears that the annual rainfall then varied from 7 feet to 11 feet, while the mean temperature averaged slightly over 80° ; the maximum being 90° , and the minimum 74° . Ordinarily we have a mean annual thermometric range of only 10° .

From the accompanying table (this table was too long for publication in extenso) of meteorological observations for 1874, kindly furnished me by the present observer, Mr. Pontifex, it will be seen that rain fell on 226 days during the year, the total rain-fall amounting to a little over 10 feet, while the average temperature was slightly over 80° .

It is generally considered that two wet, and two dry-seasons occur during the year; the *long dry* season extending over September, October, and November, and the *long wet* season from about the middle of April to the end of August; December and January being showery, and the months of February and March being looked upon as the *short dry* season.

A glance at the figures on the following page will shew the data on which this opinion has been founded:—

TABLE SHEWING THE NUMBER OF WET DAYS IN 1874, AND THE RAINFALL.

	No. of Wet Days.	Rainfall.		No. of Wet Days.	Rainfall.
January	21	4.68	July	25	13.83
February	17	7.51	August	17	15.96
March	18	8.69	September.....	7	1.19
April	17	11.46	October	12	4.46
May	29	12.18	November.....	16	13.56
June.....	24	15.19	December	23	14.43

July, August, and September are usually the most unhealthy months in the year, the temperature being oppressive, and the winds being, more frequently than at other times, disease-engendering, chilling, and depressing land-winds. The atmosphere is frequently surcharged in those months also with electricity, and thunder-storms are of common occurrence. One slight shock of earthquake was felt towards the end of 1874.

Dr. Shier, late medical inspector of Estates' Hospitals, observes that ozone is less frequently indicated by test in July, August, and September, and in December and January (the long and short rainy seasons) than at any other period, and that it frequently happens then "that the ozone paper tinged by the sea-breeze in the morning, by mid-day, when the sea-breeze has failed and a land-breeze set in, is thoroughly bleached out."

October and November are usually the most pleasant months, the temperature at noon being scarcely ever higher than 85°, and the atmosphere being specially tempered by the refreshing and bracing trade-winds from the east and north-east, which have passed over the Atlantic.

In consequence of the low-lying position of the coastlands—four feet below high water mark of spring tides—drainage is usually defective. At best it can only be effected twice in twenty-four hours, and then only for a brief period by natural outfall or gravitation; and as such natural outfall as exists is often greatly, if not altogether obstructed by the formation of drift-mud banks along the coast, the mischievous effects on the health of the community, from time to time, may be imagined.

Natural drainage is said to be perfect in the interior of the country, the salubrity of which, according to Schomburgh, is proverbial. The rich clayey alluvial soil of the coast extends over ten miles inland. For about fifty miles further inland, hills of sand or gravel, with intervening fertile savannahs are met with, while still further in the interior, after passing over miles of a rich primitive soil, the country is mountainous, "with divers coloured ochres, indurated clays, and various mixtures of loamy earths and vegetable mould, on beds

of granite to a vast extent.”—(Bennett.) The Guiana mountains abound in ironstone.

Malarial fevers are endemic throughout the whole of the inhabited parts of the colony; and anæmia, and debility in consequence, in a great measure, of vicious and careless habits, plus the effects of chronic malarial poisoning, is the prevailing characteristic of the sick amongst the labouring population.

From the Report of the Medical Officer to the Immigration Department to the Executive, for 1874, it appears that of 114,891 cases treated in Estates' Hospitals throughout the colony, during the year (almost exclusively East Indians and Chinese, serving under indenture for terms varying from one to five years), nearly one-half (51,434) were treated for some form of malarial fever; 2,994 cases of dysentery; 3,193 of diarrhœa; 2,631 of debility; 385 of dropsy; 15,572 of ulcer; and 223 of spleen diseases (Leucocythæmia?), which are mentioned as having been admitted to hospital in the same period, might, in my opinion, be ascribed, to a much greater extent than is generally believed, to the same morbid cause.

The normal state of a large proportion of our Indian immigrants being one of syphilisation, considerable importance must always be attached to this condition as a factor in the production of many of the diseases from which they suffer; but, syphilis out of the question, it may be asserted in general terms that the deleterious effects of malaria (whatever malaria may be) acting on persons of grossly uncleanly and depraved habits is, directly or indirectly, the chief cause of disease and death amongst this class of the community.

The influence of caste on the mortality amongst them, is sometimes considerable, seriously affecting, as it often does, particularly so far as diet and stimulants are concerned, the nature of the treatment during sickness.

Opium-eating is common too, and accounts for a small proportion of the mortality; its intermittent use frequently giving rise to diarrhœa, resulting in debility, speedily followed by dropsy, or latent pneumonia, and terminating fatally.

But the great curse of the coolie in this colony is his laziness, coupled with his inordinate love of money. As a rule, he does not care to exert himself more than he can help, but a few dollars once acquired, he will, with a view to his subsequent return to India in affluent circumstances, live for months on cheap food, of inferior quality, and in a state of almost perfect nudity, in the hope of being able to double his hoard. He thus specially qualifies himself for sickness, and during sickness, for rapid and unlooked for death. Want of stamina, from other than climatic causes comes first, then comes the influence of malaria, and then the end.

Of the 114,891 patients admitted to treatment in the Estates'

Hospitals in 1874, we learn from Dr. Watt's report that 1,562, or 1·35 per cent. of the whole number treated, died.

The proportion of chest and allied affections occurring in the several parts of the colony, amongst the indentured immigrants, can be seen from the following table :—

County.	Pneumonia.			Bronchitis.			Other Lung Affections.			Phthisis.			Influenza.			Heart and Blood Diseases.		
	No. treated.	No. died.	Per centage of deaths.	No. treated.	No. died.	Per centage of deaths.	No. treated.	No. died.	Per centage of deaths.	No. treated.	No. died.	Per centage of deaths.	No. treated.	No. died.	Per centage of deaths.	No. treated.	No. died.	Per centage of deaths.
Berbice	53	24	45·28	897	20	3·72	630	0		32	13	40·62	69	1	1·44	11	6	54·54
Demerara ..	141	45	31·91	1724	39	2·26	1421	2	0·14	127	51	40·15	119	3	2·52	17	7	41·17
Essequibo ..	105	34	32·38	149	25	16·77	892	6	0·67	52	19	36·58	88	7	7·95	7	6	85·71

Or put differently it would appear thus :—

Table showing the total number of indentured immigrants treated in Estates' Hospitals in British Guiana in 1874 ; the total number of deaths ; the number of deaths from chest and allied affections, and the percentage of deaths from particular chest affections to the total number of deaths :—

Year.	No. of indentured immigrants.	Total number treated.	Deaths from all causes.		Deaths from chest affections.		Per centage of deaths from all causes.
			Total.	No. per 1,000 indentured immigrants.	Total.	No. per 1,000 indentured immigrants.	
1874	41,978	114,891	1,562	37·209	308	7·337	19·17
Name of Particular Disease.							
Pneumonia ...	41,978	299	1,562	37·209	103	2·453	6·59
Bronchitis	41,978	2,410	1,562	37·209	84	2·001	5·37
Other Lung Diseases	41,978	2,943	1,562	37·209	8	0·905	0·51
Phthisis	41,978	211	1,562	37·209	83	1·977	5·31
Influenza	41,978	276	1,562	37·209	11	0·262	0·70
Heart and Blood Diseases	41,978	35	1,562	37·209	19	0·453	1·21

It appears from this that chest affections amongst this class of the population in British Guiana constitute very nearly 20 per cent. of the entire mortality throughout the year—rather a staggering revelation, when we take into consideration the popular belief that cold weather has so much to do with the generation of such diseases, and when we learn (as we do from the report of the Registrar-General for Scotland, where, by-the-way the mean temperature in December last was as low as 30·9° Fahr.) that the proportion of deaths from respiratory affections to the entire mortality was almost exactly the same in British Guiana (with a mean temperature of 81°, and an annual thermometric range of only 10°) as it was in cold, damp, bleak Scotland, in 1874.

It is curious to note that lung affections in the West Indies, take the place of liver affections in the East Indies. Of the 114,891 cases treated in Estates' Hospitals during the year, only 291 were entered as suffering from liver diseases, the mortality being 18.

In the City of Georgetown there were 1,804 deaths in 1874, the percentage of deaths from chest and allied affections, to the entire mortality, having been as follows :—

Phthisis	14·634 per cent.
Pneumonia	2·771 „
Bronchitis	1·330 „
Other diseases of the Respiratory Organs	1·385 „
	— = 20·120 per cent.
Heart Diseases	8·436
	— = 3·436
Atrophy, Marasmus, and Debility	7·261
	— = 7·261
<hr/>	
Total ...	30·817 per cent.

In 2.161 per cent. of the cases the cause of death was not specified.

There is a popular belief that acute inflammatory diseases run a much more rapid course in tropical, than they do in temperate climates. This belief, I have no hesitation in asserting, is unfounded as regards British Guiana. It certainly is so of simple, acute, uncomplicated pneumonia.

Of twelve cases of pneumonia of the right lung, occurring in adults of the average age of twenty-four, notes of which have been supplied to me from his hospital registers, by Dr. Hillis, medical officer in charge of the island of Lequan, I find that the average duration of the disease was 15½ days; eight of the twelve were discharged, cured, after an average stay in the hospital of 18½ days; four died, after having been under treatment, on an average, 11 days.

Two cases of pneumonia of the *left lung*, in young adult negroes, which Dr. Hillis treated in hospital during the year, were discharged cured, after an average stay in hospital of 15 days—one taking 20, the other 10 days to recover.

One man, aged twenty-three, treated for *double pneumonia*, died on the 5th day; another, aged thirty-six, suffering from broncho-pneumonia, recovered, and was discharged on the 12th.

In my own practice during the year, the results have been very similar. From a few of the "hospital registers" which I have now before me, I find that of eleven cases of *pneumonia of the right lung*, four died, seven having been discharged cured, after an average stay in hospital of 13½ days.

Of eight cases of *pneumonia of the left lung*, three died; those cured having been, on an average, under treatment 10 days.

Of four cases of *double pneumonia*, three recovered after having been under treatment 16½ days; one died on the 6th day.

Two cases of *pleuro-pneumonia* recovered after 35 days.

Of three cases of *broncho-pneumonia*, one died, the two others having recovered after an average stay in hospital of 18½ days.

It will be seen from the table on page 254, that of 299 cases of pneumonia occurring amongst the indentured immigrants throughout the colony during the year, 103, or 34.44 per cent. died. This contrasts very unfavourably with the mortality from the same cause in the Royal Infirmary, Edinburgh, which, from 1856 to 1865, averaged only 11 per cent.; while, in the practice of Dr. Bennett, only 3 per cent. of the total number of pneumonia cases treated, died.

The treatment usually had recourse to here, varies considerably amongst the several medical officers, but is, I believe, as a general rule, restorative.

In the Colonial Hospital, Georgetown, calomel and opium, or calomel, tartar emetic and opium, in small doses, is administered; whilst warm poultices or blisters, or both, are generally applied to the chest. In 1874, 131 cases of pneumonia were treated in this hospital, of whom 43 or 32.82 per cent. (nearly 2 per cent. less than in Estates' Hospitals) died.

From the nature of the climate and soil, labourers prefer usually to go without shoes or clothes; and hence, in some cases, an explanation of the frequency of pneumonia and other lung diseases. But in a considerable proportion of cases, my conviction is strong, that malaria acting under certain circumstances as a blood poison, is the immediate exciting, as well as a common predisposing, cause. Certainly, nothing is more common, and nothing has to be more closely watched for than the supervention of lung disease in protracted malarial fevers. Latent pneumonia in particular, is an exceedingly common complication, and if the frequency with which it occurs were only

carefully noted and recorded, a valuable contribution would be added to this branch of medical literature. The frequent and careful use of the thermometer is invaluable as an aid in detecting this condition in its earliest stage. In cases of severe remittent fever, latent pneumonia is a by no means infrequent cause of death.

In accounting for the large mortality from pneumonia, it must not be forgotten that in this, as in all other inflammatory diseases tending to debility, littoral fever almost constantly crops up as a baneful complication. And when the generally anæmic and cachectic condition of the people, and their total want of stamina is considered, there remains but little to explain. Before dismissing the subject, however, a reference to the prevalence of skin affections throughout the colony may not be out of place.

In 1874, 3,719 cases were treated in the Estates' Hospitals for diseases of the integumentary system. Many of these were of syphilitic origin, but the great majority were the result of reckless and unnecessary exposure to the sun, of filth, and of scabies, of a foul, and frequently of a most intractable, nature. These patients, I believe, in a far greater proportion than others, when attacked by acute pneumonia, go to the wall. The kidneys alone fail to perform the work of elimination; the skin has long ceased to do anything in that way; and the blood not being properly depurated, the lung affection speedily leads to a fatal termination.

Of 94 cases of sudden death occurring in the Queenstown and adjoining districts, in 1874, and in which I made a post-mortem examination, I found that the lungs were at fault in 16, and the heart in 10 instances.

Six of the 16 died from inflammatory affections of the right lung, 1 of the left lung complicated with pericarditis, 4 from congestion of both lungs, 1 from pleuro-pneumonia of both lungs and pericarditis, 1 from pulmonary apoplexy, 1 from pleurisy, and 2 from pulmonary consumption.

The most common causes of death from heart-disease were hydro-pericardium, and the formation of fibrinous coagula in the cavities.

One interesting case of congestion of the lungs, supervening within twenty-four hours after the application of thirty-nine lashes with the "cat" on the bare back, and subsequently developing into well-marked pneumonia came under observation in the County Gaol, Essequibo. The man, a coolie, made a good recovery. His chest had been examined before the "cat" was applied, and found to be perfectly sound.

The Registrar-General's report for the whole colony for 1874 having not yet been published, we must fall back upon older reports to ascertain the annual death-rate. There were 7,245 deaths in 1873. Taking the census returns of 1871 as our basis of calculation, we find that,

the population having been 193,491, the death-rate was 37·443 per 1,000. The death-rate for the city of Georgetown, the population of which in 1871 numbered 34,819, was in 1873, 54·39 per 1,000, while that of New Amsterdam, with a population of 5,437, was as high as 55·73 per 1,000.

The death-rate for Georgetown in 1874 was 51·810 per 1,000, the birth-rate being 44·257. There were 183 still-births during the year.

A glance at the last report of the Registrar-General for Scotland will shew a startling contrast. There, the highest mortality during the year, in towns having 25,000 inhabitants and over, was 28·3 per 1,000, while in the insular rural districts, it was as low as 16·8. The percentage of births in the principal towns is given as 4·29.

The death-rate in Scotland too was largely increased beyond the average by epidemics of scarlet fever, and other zymotic diseases, while in Georgetown and New Amsterdam there were no such epidemics to account for the excessive mortality.

And if 11 deaths per 1,000 is what may be termed the necessary annual mortality amongst those residing in the country, and 17 per 1,000 amongst those living in cities, what can be urged in favour of the "magnificent province," and its capitals, as a home?

In the "Times" of 3rd July last, the rate of mortality in certain towns, during the previous week, was given as follows:—

London	. 17 per 1,000.	Dublin	. 24.	Berlin	. 41.
Edinburgh	. 19	Vienna	. 25.	Munich	. 46.
Philadelphia	18	New York	25.	Hull	. 22.
Paris	. 21	Glasgow	. 26.	Leeds	. 23.
Brussels	. 22	Amsterdam	27.	Liverpool	28.

The mortality-rate for the whole Colony of British Guiana, as I have already stated, is $37\frac{1}{2}$, while for Georgetown it is $54\frac{1}{3}$, and for New Amsterdam $55\frac{2}{3}$; in other words, it is three times as great as that of London, Edinburgh, and Philadelphia, and more than twice as great as that of Amsterdam, New York, and Glasgow.

How is this to be accounted for? *Almost entirely by the habits of the people. The climate of itself has little to do with it.*

From the Registrar-General's reports for 1871, 1872, and 1873, it appears that of 21,772 births (exclusive of 1,471 still births) occurring in those years, 14,886 were illegitimate.

Of 21,923 people who died in the same period, 10,487 died without having had medical attendance in their last illness!

When referring to our negro-villagers I alluded to the visible deterioration in their physique, and referred to the change in their condition since "emancipation," in its bearings on the causation of phthisis.

Prior to 1834, venereal affections, scrofula, phthisis, and insanity were almost, if not altogether, unknown diseases amongst this class

of the community. With the exception of fevers, dysentery, and diarrhoea, none are now more common, or prove more fatal.

Leprosy also, anaesthetic and tubercular, advances hand in hand with the others, and is becoming more and more every year one of the recognised endemic diseases of the colony.

The accompanying table gives an idea of the progress of phthisis throughout the colony, as indicated by the admissions into the Colonial Hospital, Georgetown, in certain years. The figures do not apply exclusively to negroes, as all classes are admitted to the hospital. I am, however, safe in saying that the majority of cases occurred amongst them. Through the courtesy of the gentlemen connected with the hospital, I was allowed access to the several records from which the information was procured, and so can vouch for the accuracy of the figures.

TABLE shewing the number of cases of Phthisis treated in the Colonial Hospital, Georgetown, in certain years.

Years.	Number of cases treated.		Number of deaths.		Per centage of deaths to number treated.		Per centage of deaths from Phthisis to total number of deaths.
	Total.	Phthisis.	Total.	Phthisis.	Total.	Phthisis.	
1849	4,586	13	439	9	9.57	0.19	2.05
1854	2,086	29	309	20	14.81	0.95	6.47
1859	3,150	74	521	48	16.57	1.52	9.21
1864	2,912	97	436	54	14.97	1.85	12.38
1869	3,765	178	533	81	14.15	2.15	15.19
1874	4,889	213	664	129	13.58	2.64	19.42

In the last twenty-five years, therefore, it will be seen that the number of phthisical patients admitted to this hospital has increased more than sixteen times, the total number of admissions having remained much the same. That this increase is due to idle, vicious, and degrading habits, indulged in for a series of years; in short, that it is the result of causes acting within the body, rather than of any change in, or modification of the climate, is altogether beyond doubt or cavil. No unprejudiced enquirer can arrive at any other conclu-

sion, after a careful study of the meteorological returns issued between 1846 and 1874.

Garrets and cellars are almost unknown in British Guiana. Overcrowding, in the ordinary sense of the word, is difficult, as even in our houses, which are always built of wood, we may be said to live in the open air. The occupation of the great majority of the population—agricultural labourers—is not one generally believed to be favourable to the production of phthisis. Hereditary tendency, if it existed previous to 1834, was certainly not conspicuous. Predisposition would probably have affected slaves and freedmen alike. Humidity was as great, if not a greater characteristic of the climate forty years ago than it is at present, as “bush” is being cut down, the country is being opened up, waste-land is being reclaimed, and drainage is being improved every year.

Yet phthisis is steadily on the increase everywhere throughout the colony.

Dr. Brewer Mattock's theory, as to the great mortality from this disease, in the States of Massachusetts, Maine, and Vermont, being due solely to cold and moisture, is not supported by facts.*

Cold and moisture are not the characteristics of the climate of Australia; yet phthisis is one of the prevailing diseases there, and is everywhere gaining ground. Heat and moisture are the characteristics of the climate of British Guiana, yet here also phthisis prevails.

A reference to the accompanying tables will perhaps prove more convincing on this point than any number of vague and indefinite statements, from whatsoever source they emanate.

I.—TABLE shewing the Mortality from Phthisis in British Guiana, in certain years.

Years.	Popula- tion.	Deaths from all causes.		Deaths from Phthisis.			Proportion to entire population.
		Total.	No. per 1,000 of population.	Total.	No. per 1,000 of population.	Per centage of deaths from all causes.	
1871..	193,491	7,324	37·85	506	2·611	6·98	1 in 382 living.
1872..	193,491	7,354	38·005	532	2·749	7·234	1 in 363 „
1873..	193,491	7,245	37·443	429	2·217	5·291	1 in 451 „

* Dr. Dobell's "Reports on the Progress of Medicine" (1869.)

II.—TABLE shewing the Gradual Increase of Consumption in Melbourne and Suburbs in certain years.*

Years.	Population.	Deaths from all causes.		Deaths from Phthisis.		Per centage of deaths from all causes.	Proportion to population.
		Total.	No. per 1,000.	Total.	No. per 1,000.		
1866....	164,787	4,203	25.51	342	2.08	8.41	1 in 481
1867....	170,269	4,207	24.71	376	2.21	8.94	1 in 452
1868....	174,663	3,800	21.76	379	2.17	9.97	1 in 460
1869....	180,000	3,832	21.29	454	2.52	11.85	1 in 396

III.—TABLE shewing the Mortality from Consumption in the following New England States in 1860.†

Year—1860.	Population.	Deaths from all causes.		Deaths from Phthisis.		Per centage of deaths from all causes.	Proportion to population.
		Total.	No. per 1,000.	Total.	No. per 1,000.		
Massachusetts..	1,231,063	21,384	17.3	4,924	3.99	23.02	1 in 250
Maine	628,379	7,614	12.1	2,244	3.57	29.47	1 in 280
Vermont	315,098	3,355	10.6	787	2.47	23.24	1 in 400

IV.—TABLE shewing the Average Mortality from Consumption in England during the five years ending 1841, and the five years ending 1864.‡

Years.	Average annual population.	Average total number of deaths.		Average of deaths from Phthisis.		Proportion to population.
		Total.	No. per 1,000.	Total.	No. per 1,000.	
1837—41..	15,720,385	347,070	22.07	55,718	2.97	16
1860—64..	20,196,787	495,531	24.53	51,595	2.55	10

* From Dr. Thompson's (of Melbourne) work on the Climate of Australia.

† Compiled from figures given by Dr. Brewer Mattocks in Dr. Dobell's Reports (1869.)

‡ Compiled from figures in Bennett's article in "Reynold's System of Medicine."

It thus appears that in Melbourne and its suburbs, where on marshes exist, where the climate is famed for its dryness and its salubrity, where the lands are high and the drainage natural, the rate of mortality from phthisis, in 1869, was 2.52 per 1,000 living. In British Guiana, one extensive marsh, with a climate intensely humid and notoriously unhealthy, where the coast-lands are situated 4 feet below high-water mark of spring tides, and where the drainage is always more or less obstructed and imperfect, the rate of mortality from the same cause, in 1871, was 2.611 per 1,000 living.

In England, the average mortality from consumption during the five years ending 1864, was 2.55 per 1,000 living. In the State of Massachusetts—the phthisis hotbed of the world—it was 3.99, in Maine 3.57, and in Vermont 2.47 per 1,000.

The climate of British Guiana is more damp and humid than that of Massachusetts or Maine, yet Massachusetts and Maine have much the larger mortality from phthisis!

What more natural—with facts like these staring one in the face, than to conclude that the influence of climate *per se*, in the causation of consumption, or on its mortality, is almost, if not absolutely, nil.

And its influence, alone, in curing the disease, is, I expect, not one whit greater than in producing it.

The average duration of pulmonary consumption in the few cases in which I have been able accurately to ascertain it, has been as nearly as possible the same here, as it is elsewhere throughout the world—about two years.

But I am aware of several notable instances in which persons suffering from phthisis in an advanced stage, with vomices in both lungs, have, since their arrival in the colony—now many years ago—enjoyed excellent health, and in which, notwithstanding the humidity of the climate, the progress of the disease seems to have been checked. This result, however, has in all probability been due rather to an entire change in habits and regimen, than to any peculiar healing-virtue attributable to the climate. And such, one can scarcely help thinking, is most commonly the case elsewhere.

Change, in such cases, is beyond doubt, beneficial; but that the good sometimes derived from change should be always placed to the credit of a particular climate, remains yet to be proved.

Bennett's idea, *that the weak and puny ones of the world are weeded out by phthisis*, is probably, after all, the best and the most correct one.

It is a significant fact, that phthisis is by no means so common a disease amongst our indentured immigrants as it is amongst the population generally; the reason, no doubt, being that their wants are generally attended to early, that they are well cared and provided for during sickness and convalescence, have no occasion to despond or

suffer from over-anxiety, and that they are compelled, to a considerable extent, in consequence of their position, to care for themselves. Only 83 deaths were attributable to it in 1874, being at the rate of 1·97 per 1,000 of the number indentured, or 5 per cent. of the total mortality. The rate in 1873 was considerably less.

This shows curiously as against 60 per cent. of the entire mortality at Her Majesty's Penal Settlement, Massaruni; and 14·28 per cent. at the Georgetown Gaol, due in 1873 to the same cause.

In 1874, 10 per cent. of the total mortality in the Alms-house, Georgetown, and 15·38 per cent. in the Lunatic Asylum, Berbice, was due to it; all tending to show how very intimately poverty, vice, anxiety, crime, and their concomitants are associated with the presence and prevalence of phthisis.

Professor Ewart,* of Calcutta, observes:—"1. That the tubercular diathesis, without tubercle in the lungs or elsewhere, is much more common in India than in Europe. 2. That tubercular disease of the solitary glands of the large intestine, or of the agminated glands of Peyer, ending in ulceration and death by asthenia, without any physical manifestation of tubercle in the lung before or after death is frequently met with in India. 3. That many tubercular Europeans and natives perish from bowel complaints, perpetuated by this diathesis after tubercle has been developed in the lungs, but before any acute phthisical symptoms have attracted attention to the chest."

I refer to Professor Ewart's observations, that I may have an opportunity of mentioning that, as he has found it in the East, so it is in the West Indies. A large number of our atrophy, marasmus, and debility cases should, no doubt, be included under a more familiar heading.

A considerable number of phthisis cases occurring in my own practice, I believe to have originated in accidents of previous or existing diseases, and notably to pneumonia and leucocythæmia. Chronic pneumonia (acute phthisis) undoubtedly resulted in several instances in consequence of exposure during convalescence, of want of stamina, and of want of proper food, care, and attention; and spurious phthisis, originating in the deposit and hardening of the white corpuscles of the blood which have escaped from the capillaries during congestion, is no doubt much more common than is generally believed.

The treatment of phthisis throughout the colony usually consists in the administration of cod liver oil, in addition to other nutrients, special symptoms calling forth the use of special remedies. Blistering is common.

Dr. Mauget, our distinguished Surgeon-General, informed me

* Indian Annals of Medical Science, No. xxiv.

that the little experience which he has had in the use of pancreatic emulsion was not of so favourable a nature as to induce him to adopt it in preference to the older remedy. I myself, both in hospital and private practice, almost invariably prescribe sulphuric æther along with the cod liver oil, with a view to assist the absorption of fat, and bring it at once into a state of molecular division.

I regret I can furnish no special facts regarding cardiac affections throughout the colony, the vague way in which they are ordinarily entered ("heart disease") rendering it impossible to get accurate information. The frequency with which fibrinous coagula (ante-mortem) are formed in the cavities of the heart, and in the large blood-vessels after death, is somewhat curious. Chronic rheumatism is very common in the colony, but acute rheumatism is comparatively rare. Irregular and intermitting action of the heart without the existence of organic lesion is common amongst old-standing colonists.

The population of the colony is made up of individuals of almost every nationality in the world, differing in race, religion, language, and habits, and between whom the only apparent cohesive principle seems to be—gold.

The census of 1871 gives the birth-place of the people as follows:—

British Guiana	...	...	...	113,570
India	...	...	...	42,681
China	...	...	...	6,295
Madeira and Azores	...	...	...	7,925
West India Islands	...	...	...	13,385
Other places	...	...	...	9,635

Grand total 193,491

The Portuguese are by far the most industrious and moral class amongst the labouring population; but their anxiety to amass wealth causes them to stint themselves in the matter of the ordinary comforts of life, and so renders them very liable to the influence of malaria; anæmia, dropsy, enlarged liver and spleen, and leucocythæmia, are perhaps the most prevalent diseases amongst them. Phthisis is not a common cause of death. A considerable number are syphilised.

The Chinese succumb most frequently to diarrhœa, dysentery, and to those diseases vaguely termed, "other affections of the respiratory organs." Phthisis carries away a few, but does not appear to do so so often as it does amongst the negroes and East Indian Coolies. They are fond of the good things of life, and like nothing better than to enjoy them, when in a position to do so, which by-the-way, is not at all seldom. I have seen them with shovels in their hands, and cigars in their mouths, driving in a cab at 7 o'clock

in the morning to the estates on which they proposed working for the day. In the evening the cab was in waiting to drive them home. While the East Indian or negro may be met at any hour of the day or night reeling along the road in a state of gross intoxication, nothing is more uncommon than to meet a Chinaman in this condition. If he gets drunk, he prefers to do it at home.

Negroes from Barbadoes and the other West Indian Islands, appear to suffer more severely from the diseases of the colony than Europeans do—a fact entirely owing to their habits, which are anything but those of a modest, industrious, and honest peasantry.

The “coloured” race, in my experience, bear up much worse against disease than do either the negro or the European. The second generation, in particular, want stamina. Convulsions is an exceedingly common affection amongst their offspring.

The diet of our labouring population is, except perhaps in the case of the Chinese, usually miserably same and poor. It consists chiefly of salt fish, rice, and plantains, varied now and again by fresh-fish (often of indifferent quality), salt beef, pork, and certain kinds of fruit. Vegetables could be grown cheaply and easily, but are not much cultivated.

The prices given below are those at which small quantities can be purchased in the country shops:—

Salt Fish	...	...	...	4d. to 6d.	per lb.
Salt Beef	...	...	...	10d.	„
Pork	...	...	...	8d.	„
Mutton	...	...	...	1s. 4d.	„
Fresh Beef	...	...	...	10d. to 1s.	„
Rice	...	...	...	4d.	„
Plantains	...	...	from	$\frac{1}{2}$ d. to 1d.	a-piece.

Rain water is commonly stored in tanks, and can, except in seasons of drought, and in the villages, usually be had for ordinary purposes all the year round.

There is no medical society in the colony, nor, strange to say, is there a medical journal published in it, or in any of the West Indian Islands, notwithstanding that there are gentlemen practising their profession in the West Indies, whose attainments, both literary and scientific, would win for them an honorable position in any part of the world.

It is to be hoped that this reproach will soon be taken away, and that by the time the next “Report for British Guiana” is due, the experience and the results of practice in the profession throughout the West Indies will be placed on record in such a form as will be made easily accessible to all interested.

CALIFORNIA.

(Report compiled from the forthcoming report of the State Board of Health by THOMAS M. LOGAN, M.D., Secretary of the State Board of Health of California.)

It has been claimed that the extension of civilisation, the pursuit of agriculture, the drainage and reclamation of vast tracts of marshes, and particularly the felling of forests, have made great changes in the climate of the United States, especially in respect to temperature and rainfall. But whatever of truth there may be in the theories of man's agency in modifying climate, we cannot go beyond the results of the records, which have been made through a long series of years. Unsatisfactory as these records may be, they nevertheless constitute the only reliable data that we have for determining whether either of the climatic conditions just referred to are increasing or diminishing—stationary or periodic.

From an examination of the results of all the observations which have been collected by Professor Henry and published in the reports of the Smithsonian Institution, we find that there has been no material change in the average rainfall; when long periods of time are compared, however the annual amount may vary. The irregularities in the successive yearly precipitation, though found to be very great in the different groups of the stations where the observations were made, and into which they were classed for the purpose of being systematically studied, nevertheless do not obliterate the appearance of conformity to general laws. The only decided indications of any material change are found in groups one and two, comprising New England and the Middle States, where the rainfall seems to have steadily increased since the year 1818, in the very district which has been most stripped of its clothing of forest. Thus the power of augmenting the fall of rain which has been largely attributed to trees, vaguely by some, who confound such an attribute with their power of attracting mists, and boldly by others, who assert that rain now falls where trees have been planted in tracts formerly rainless, cannot longer be logically entertained. We learn positively from the mean results, as tabulated, that the rainfall during 137 years has undergone no change on this continent. The humidity of the great aerial currents is quite independent of local causes. The

winds, charged with moisture collected in other regions, discharge their rain with indifference over wooded and unwooded districts, and the rainfall is not now more or less than it ever was.

The same conclusions may be drawn from the results of the temperature records, the fluctuations of which are found to be quite uniform throughout the entire country. Two or three years near 1812 are historically known as cold years; and a reference to this period shows them to have been more extreme than any since, if we except the winter of 1874-5, in the Eastern States. Next in severity come the cold years 1835-36, and 1836-37. The next coldest groups were 1823-24, 1843-44, and 1873-74. The high temperature groups are—1825-30, 1844-48, and 1853.

It would seem that there are two classes of non-periodic changes—one less frequent and affecting longer periods, and another causing changes above or below the general line of these long periods, and belonging to periods of a year or two. Further than this we find no results worthy of special mention from these long continuous observations over our vast territory, and hence infer that man's agency in influencing either the temperature or aqueous precipitation is, as far as we are able to judge, altogether insignificant. Similar inferences are deducible from the results of the observations made on the Pacific slope. In the comparatively brief records herewith presented, there is no evidence discernible of progressive or retrogressive movements, either in the temperature or in the rainfall. But the question of the rainfall, or of the temperature, does not settle the question of humidity. The humidity of the atmosphere depends not so much upon the amount of precipitation in rain as upon the rapidity of the process of evaporation and drainage; and it is here that man's agency proves instrumental in modifying climate. Our country, which was once largely covered with an unbroken forest, is now, to a great extent, denuded, the decrease of the forests being at the ratio of 7,000,000 of acres annually. The rain, which was gradually conveyed by the leaves of trees to a dense undergrowth and layer of fallen leaves and vegetable mould, which absorbed it like a sponge, and whence it was transferred by the roots to the depths of the soil, now runs off by the nearest watercourses, leaving no supply of water during dry weather. The restraint of evaporation by the dense shield afforded by forest shade being thus removed, the sun pours down upon the unprotected soil and rapidly evaporates the superficial water. The natural consequence of all this is an increased dryness of the atmosphere. This conclusion, which is arrived at from general observation and practical knowledge, needs not the proofs that physical science affords by means of the wet and dry bulb thermometers. The facts are patent and intelligible to all, and can be measured in an uncovered district by the sensible diminution of a mountain stream after a day of intense

sunshine. In California, on the eastern side of our great valley, in places where the upper lands have been cleared of trees, the rainwater descends impetuously in a torrent, leaving tiny streams, which flow steadily for many days, so long as the sky remains overcast, but cease altogether after a single day of sunshine.

In this connection, I would add that the rains in California are not now either lighter or heavier, or more fitful, than in former times, but there are fewer woods to restrain the drops, which unite to denude the rocks of their soil, and to form the mighty torrents, conveying thousands of tons of detritus to fill up the rivers, as witnessed every winter season. It cannot be doubted but that an extensive planting of trees in the valleys, at the head of the main ravines, where cachement-areas of 22,742 square miles have been hypothetically plotted out, according to the projected irrigation plans of the United States Commission, would superinduce a more humid condition of the atmosphere, and lead to a more constant supply of water, in a region now arid and desolate, for more than six months in the year. The evaporation from such immense reservoirs as are contemplated by these surveys, would be simply enormous, and, if intercepted by the trees before being completely vaporised, the minute component vesicles of water would coalesce upon the leaves and branches, and fall in drops upon the earth. This is the mode in which trees might tend to increase the humidity of the atmosphere, and which furnishes a rational and potent reason for their general cultivation in the arid and semi-tropical climate of California.*

This I regard as the principal mode by which trees may have a tendency to increase the general humidity of the climate; but from sanitary considerations, this would be undesirable anywhere, except in the arid and semi-tropical zone of California.

In no other respects, perhaps, has the influence of the superinduced dryness of the climate of the Eastern States, above alluded to, been more palpably demonstrated than in its results upon certain diseases; and no stronger evidence can be adduced in support of this conclusion than that afforded in an abstract, compiled from two tables, by Dr. Ham, of Dover, New Hampshire, to whose valuable paper, bearing on the whole subject under discussion, I am largely indebted. From the first table, exhibiting the amount and ratio of sickness and

* It appears from Statistics published in the Report of the U. S. Agricultural Department, in 1872, that California has a less area of forest, in proportion to farm lands, than any other State in the Union. The whole area of the State is estimated at 120,947,840 acres, of which 109,520,755 are not cultivated. The estimated area in Woodland is 9,604,607 acres, of which, that which is included in farms is only 477,880 acres. The area in farms is estimated at 11,427,105 acres, of which only about 4.1 per cent. is in Woodland. The proportion increases from the Pacific Coast, towards the East, to Indiana, which has 39.6 per cent., and then there is a gradual decrease to the Atlantic.

mortality in the United States army, from phthisis pulmonalis, during fifteen years, commencing in 1840, and ending in 1854, it is shown that temperature, *per se*, does not have that controlling influence upon phthisis, which has been attributed to it; but that *dryness* is the most important atmospheric condition. The lowest ratio of cases of consumption occurs in New Mexico; where it is 1·3 per cent. per 1000 soldiers, and the highest in the South Atlantic region, where it is 9·2 per cent. per 1000. The gulf-coast of Florida gives the next highest proportion, being 7·2 per cent. per 1000 of mean strength. New England has 4·8 per cent. per 1000 mean strength.

The second table referred to, constructed from the vital statistics of Boston, New York, and Philadelphia, and within the region of the modification of climate in respect to humidity, shows a relative decrease in the number of deaths from phthisis-pulmonalis since 1810.

IN BOSTON.

From 1810 to 1820, 1 death from phthisis in 4·6 deaths.

„ 1820 „ 1830, 1	„	„	6.0	„
„ 1830 „ 1840, 1	„	„	7.5	„
„ 1840 „ 1850, 1	„	„	7.0	„

IN NEW YORK CITY.

From 1810 to 1820, 1 death from phthisis in 4·6 deaths.

„ 1820 „ 1830, 1	„	„	5.6	„
„ 1830 „ 1840, 1	„	„	5.9	„
„ 1840 „ 1850, 1	„	„	7.7	„
„ 1850 „ 1860, 1	„	„	8.7	„

IN PHILADELPHIA.

From 1810 to 1820, 1 death from phthisis in 4·5 deaths.

„ 1820 „ 1830, 1	„	„	6.7	„
„ 1830 „ 1840, 1	„	„	7.4	„
„ 1840 „ 1850, 1	„	„	7.2	„
„ 1850 „ 1860, 1	„	„	8.2	„

The same authority thinks that the falling off in the relative number of deaths from phthisis, during the last seventy years, obtained also in all the diseases of the respiratory system, and is greatly due to the comparative absence of ozone, which exists in large proportion in a humid atmosphere.

Dr. Pfaff gives an account* of his observations at Plauer, in Saxony, at 1,050 German feet above the level of the sea. He has not found the direction of the wind influencing the presence of ozone. He has found stormy weather exceedingly favourable to its production;

* Vol. xlv. Braithwaite's Retrospect, as quoted by J. R. Ham, M.D.

the ozone appearing immediately in large quantity during a storm suddenly coming on, after a succession of fine weather unaccompanied by ozone. Test-paper which had long remained unchanged would then denote 8° of ozone; while as soon as the storm had passed away all reaction on the test-paper would cease—the storm seeming to bring and to take away with it the ozone.

Similar but less rapid increase in the ozone was observed during mere change of weather, as when fine weather of long duration was followed by rain. As a general rule, moisture was favourable to the development of ozone. Little or no influence was exerted by temperature; the proportion of ozone not being greater in winter than in summer. The following are Dr. Pfaff's conclusions with respect to the influence of ozone:—

1. A large proportion of ozone in the atmosphere acts mischievously on diseases of the respiratory organs.

2. The ozone of the air exerts little or no influence on epidemic diseases, provided that these are not complicated with catarrhal affections.

3. A large amount of ozone in the air, whatever may be the direction of the wind, favours the development of inflammatory affections, and especially of tonsillitis.

4. Other diseases besides those mentioned do not seem to be influenced by the amount of ozone.

In the presence of such facts and deductions it might appear inconsistent in me to recommend the planting of trees in California, as a sanitary measure.

It must be remembered, however, that the extreme aridity of the climate is very peculiar—in fact, it is too dry; and it need only be remarked here that this extreme does not belong to the summer or dry season alone. The mean relative humidity of the five rainy months (October to March), in Sacramento, is 72° , and at no time during twenty-five years has it ever reached complete saturation (100°). During the dry season, the moisture generally amounts to less than 50 per cent.; the temperature of evaporation during the hottest part of the day, not unfrequently reaching 25° to 30° . Taking the mean of the whole year this percentage is 66° . Now as the most agreeable and salutary amount of humidity (Parkes' "Practical Hygiene") is between 70° and 80° per cent., such a great deviation from this healthy standard, as is here met with, cannot but be fraught with more or less danger to the imprudent. The equability of any climate is greatly dependent upon the presence of aqueous vapour. The most potent of the sun's heating rays are largely intercepted by an atmosphere which is, to any extent, charged with watery vapour, and hence it is that the entire solar force is unfelt in our coast-region, where the evaporation from the sea perpetually supplies an effective screen. The intensity

of the sun's direct rays, as measured by a blackened-bulb-thermometer, *in vacuo*, fluctuates from 120° to 135° . The variations appear to coincide distinctly with the amount of atmospheric humidity—the thermometer rising to 148° in our great valley during the arid north-west winds, and seldom attaining more than 125° during our humid south-west winds. The dangerous difference between sunshine and shade is, therefore, due to the absence of aqueous vapour. There is no cold shade in an atmosphere reasonably humid, inasmuch as the contained aqueous vapour intercepts and diffuses the excess of solar heat, and renders the shade safe and temperate. But when the air is too dry to intercept any great quantity of solar heat, the direct rays of the sun become oppressively hot, whilst the shade is dangerously cold. The vapour of water has also another use. When the atmosphere is dry, and the sun is gone, the earth rapidly loses heat by radiation into space. A moist atmosphere, on the contrary, is, to a certain extent, impervious to the passage of the rays of heat, and a moderate temperature is maintained throughout the night. In the summer climate of the interior valley of California this shield of vapour is absent, and hence we experience great extremes of night and day, and of summer and winter. While referring to the following Tables I., II., III., (San Francisco being the type of the coast region, and Sacramento of the interior valley region,) I would remind the general reader in search of climate of the nature and value of mean temperatures. It must be understood that they are merely averages, founded upon columns and pages of individual observations. Mean temperatures merely give the *amount* of heat observed in given periods, without mention of the manner in which it is distributed, and the consequent variations to which a climate may be subject. A moderate mean annual temperature may, for instance, represent a climate like that of Santa Barbara, in Southern California, wherein night and day, winter and summer closely approximate in the quantity of apportioned heat; and also such a climate as that of Nice and Mentone, in France, regularly or irregularly subject to heat, too intense in summer to be encountered by invalids, and too frosty cold in winter. Nothing is more common than for those who consult meteorology to seize upon the annual mean temperature as a solitary point of comparison whereupon to ground their judgment, not discerning that therein the excess of summer heat is made to compensate for deficient winter-warmth.

TABLE I., showing the mean temperature of each month for twenty-four years, in San Francisco (Dr. Gibbons), and of each month in twenty-two years, in Sacramento (Dr. Logan).

MONTHS.	Twenty-four years, San Francisco.	Twenty-two years, Sacramento.
	° '	° '
January.....	48.90	46.47
February	52.05	50.55
March	54.73	54.41
April	55.78	59.52
May	57.83	64.31
June	59.73	70.46
July .. .	61.00	73.48
August	61.84	71.48
September.....	61.40	69.10
October	60.00	62.58
November	56.18	53.56
December	50.33	47.05
Mean for twenty-four and twenty-two years	56.65	60.25

TABLE II., showing the mean of all the highest readings by day, and all the lowest readings by night, as noted by the thermograph, during ten years, at Sacramento, Cal.

MONTHS.	Mean of all highest readings by day.	Mean of all lowest readings by night.	Mean daily range during ten years.
	° '	° '	° '
January ..	60.19	31.00	29.19
February	64.69	34.30	30.39
March	70.09	37.70	32.39
April	79.90	43.20	36.70
May	83.70	46.80	36.90
June	93.30	52.20	41.30
July	95.00	55.20	39.80
August	93.20	45.20	48.00
September	89.90	52.11	37.79
October	83.30	43.30	40.00
November	70.50	36.70	33.80
December	60.70	34.90	25.80
Annual average...	78.70	42.58	36.02

TABLE III., showing the mean relative humidity during thirteen years, at Sacramento; saturation being 100.

January	78.82	per cent.
February.....	74.08	„
March.....	78.38	„
April.....	66.09	„
May.....	63.29	„
June.....	58.48	„
July.....	56.14	„
August.....	57.66	„
September.....	58.83	„
October.....	61.88	„
November.....	69.65	„
December.....	76.60	„
Mean for thirteen years	66.67	„

Now the great reduction, by rapid radiation of heat, after the maximum is reached, is the most striking, as well as the most important, feature, from a medical point of view, of the interior climate of California. The extreme monthly ranges prove that the greatest transitions occur from May to October, inclusive, which is the rainless period. (I would here parenthetically observe that the mean annual precipitation is 20 inches.) The mean maximum for these six rainless months is $89^{\circ} 73'$, and the mean minimum $40^{\circ} 63'$. Consequently the mean extreme summer range is $49^{\circ} 10'$. But this does not exhibit the extreme monthly ranges, which sometimes reach beyond 50° , during the prevalence of the desiccating north-west winds, when the thermometrograph leaves its mark in the neighbourhood of 100° . However high the wave of temperature may tower up under the influence of a vertical sun and almost vapourless atmosphere, it sinks proportionately low at night—rendering it, by contrast, so cold and chilling, that blankets become indispensable for comfort. This Asiatic feature of the climate, while it imparts a resiliency or elasticity to animal life, is at the same time treacherous to the health, especially of the feeble and delicate, and often acts as an exciting cause of pulmonary disease.

EGYPT.

(Report by JAMES GRANT, M.D., of Cairo.)

The most usual disorders here are connected with the abdominal organs, and it is quite a rare occurrence to meet with disease of the thoracic viscera.

Strangers to the country, who have taken up their residence in it are not exempt from diseases of both lungs and heart, but the pure indigenous race may be said to be almost exempt. One very important reason for this, besides the mildness of the climate, is the circumstance that it is only the very strong constitutioned who can be reared; all the others die in infancy. This weeding out of the weak and the infirm ought to improve the physical condition of the natives, although it militates against the increase of population.

There are in reality two native races in Egypt, the one differing from the other in almost every respect.

Their religions, and therefore their habits, are different; and on these habits depend a great many of the diseases that afflict them.

The Coptic race is a very impure remnant of the ancient Egyptian. They profess to follow "The Nazarene," but as a rule they are filthy in their habits and in their persons, and their houses are little better than pigstyes; and this great want of cleanliness has much to do with their diseases. Bronchitis, pneumonia, phthisis, and asthma, are often met with among the Copts.

The Arab race is much more robust than the Coptic. They are the conquerors of the country, and far outnumber the Copts. They are Moslems or followers of "The Prophet," and are by virtue of their religion, much more cleanly in their habits and in their houses than the Copts; besides they do not drink spirituous liquors, while the Copts are great tipplers. It is a very rare circumstance to meet with disease in the thoracic viscera of a pure Arab.

We must look, therefore, principally to foreigners, resident in the country, and to travellers, for affections of the chest. Within the last two years I have met with phthisis pulmonalis in all its stages. Also a case of abscess in the lung of a Greek; pleurisies, ending in suppuration; bronchitis, acute and chronic; capillary bronchitis of children, etc.; several cases of asthma. A case or two of hypertrophy

of the heart; but except in the case of two or three Copts, all the others were foreign residents.

The climate of Egypt still continues to be the best attainable, for the cure or amelioration of lung-disease; but climate is not the only thing wanted by invalids, they also need some of the comforts of home life. Now this is one of the great drawbacks to Egypt, as far as the invalid is concerned. Hotel life is not suitable for invalids, and it is not every one who can afford the Nile-boat life, which is all that an invalid could desire.

Such therapeutic establishments as exist at the continental watering-places are wanted here, and would pay well any capitalist who would come forward to erect the building.

The climate of Cairo has changed considerably since the opening of the Suez Canal; and the change is still going on, owing in a measure to the extension of irrigation and the planting of trees. We are having cooler and moister summers, and in winter there is now a considerable rainfall. If the Khedive's irrigation projects are all carried out, and the Great Sahara filled with water, we shall have invalids coming here to spend the summer in Egypt, instead of the winter.

In my experience of the treatment of phthisis, I have seen more benefit derived from the iodides than from the vaunted phosphates or hypophosphites. I append a set of notes which I have prepared with much care for the use of Nile travellers.

A FEW CLIMATIC NOTES FOR THE NILE VOYAGE.

The proper time for starting on the Nile voyage is towards the end of November, while the air is still balmy and not too cold. During the month of November the early morning is generally hazy, but any fog that there may be clears off before invalids are likely to be about. The full benefit of the climate cannot be obtained in a densely-populated town, hence the advisability of the Nile trip.

Nile boat-life is simply enchanting, and there need be no fatigue connected with it. It is a great deal more of a quiet, domestic character than travelling in any other country. Mosquitoes do not infest the Nile, although they are very troublesome in the towns of Lower Egypt.

For several reasons it is best, when once started, to sail on uninterruptedly as long as there is a fair wind, unless at such places as Luxor and Edfou, which would repay one to visit a second time; at such places a break in the voyage might be made with advantage. Most of the monuments of antiquity will therefore be visited on the return voyage, and as a rule invalids may see all that is to be seen without much trouble or fatigue.

The air between Philæ and the second cataract is much drier than

that of Middle and Lower Egypt, and is highly spoken of by invalids. While the weather is yet genial in the Upper Country, remain and enjoy it! The best place to stay at is Thebes. Return to Cairo about the end of March.

Egypt possesses a great variety of climate, owing to its stretching over so many degrees of latitude. Hence, by commencing the upward voyage about the end of November, a continuance of the same relative temperature as characterises that month may be secured. The heat is never distressing, because it is tempered down by a continuous northerly breeze. The nights are cold, so that invalids should be provided with warm clothing and plenty of wraps. The difference of temperature produced in the open air after sunrise is very considerable, and brought rapidly about; on this account invalids had better not get up and out very early. At 7 a.m., the temperature outside will be 8° or 10° lower than that of the cabin.

The Nubian climate is simply the continuation of the Egyptian, only it is drier and more frequently exposed to high winds loaded with sand. Those who go into Nubia should begin the return voyage before February has far advanced, as the mid-day heat then commences to be intense.

General Summary of Nile Weather.—1. An unbroken succession of bright, cheery days; the sun and zephyr-like breezes acting in harmony (nice change for northern snows).

2. At noon the heat will be very rarely too great.

3. Evenings and mornings are cold, sometimes piercingly so.

4. Nights are clear and bracing; the moonlight is very bright.

5. High winds are not common; but local whirlwinds are not unfrequent.

6. The light breeze that has been blowing steadily all day, dies away at sunset, just when it is no longer required.

7. The wind continues blowing pretty steadily from the north all the winter season.

8. The hot winds, or Khamaseens, which blow from a southerly direction, do not commence till May; and even then they are now very mild, compared with what they used to be. Premonitory cold, boisterous, southerly winds in April, usher in the Khamaseen.

9. Rain is a rare occurrence during the Nile voyage, but thunderstorms are sometimes encountered. Immunity from damp has been Egypt's characteristic in all ages. Even on the Nile, night-dew is seldom deposited on the dahabiah. In the desert the air is still drier, but notwithstanding that, it is far from being harsh or irritating; on the contrary, it is at once soothing and inspiring.

The invalid returning to Cairo about the middle of March will find the temperature and sky much the same as when he started in

November. A high wind will not be so unusual, however, and perhaps a shower or two may fall. One feels the cold very much after a shower, owing to the rapid evaporation.

Main Features of the Climate.—1. General equability (chief defect being in variation between day and night). Avoid exposure about sunset. 2. The certainty with which the same conditions may be counted on year after year. The uniformity of atmospheric phenomena is almost unvarying.

Various forms of disease are directly or otherwise beneficially acted upon by atmospheric agency; or, at all events, living in a genial, natural temperature, removes one obstacle to the comfort of the valedudinarian, if not also to his restoration to health. Invalids themselves innately feel this. Longing to breathe the fresh air with freedom, as a benefactor and not an enemy, they sigh for a cloudless sky, the life-giving warmth and light of the sun, a buoyant atmosphere, and consequent relief from that confinement and restraint which the weather of a European winter, even in the most favoured spots, to a great extent involves.

Those who have to complain of general delicacy, induced perhaps by a severe illness, or those who suffer from any affections of the respiratory organs are especially conscious of this feeling; the one in the hope of being placed in circumstances less calculated to counteract the vital forces; the other from similar reasons, but also in expectation of avoiding specific exacerbations at the weak point; and physicians are united in advising both classes to seek more favourable climatic conditions.

To find those, many foreign lands have been and are resorted to, but in balancing their relative merits it will always be well worthy of consideration whether the advantages offered by Egypt do not greatly preponderate over those presented by any other accessible country.

In Egypt there are to be found conditions of atmosphere so exquisite and equable that they are not only admirably adapted to soothe and strengthen irritable respiratory organs and weak nervous systems, but are also singularly calculated to aid in the improvement of the general health.

The absence of humidity and the balmy, gently bracing air, form a combination exceedingly favourable to the building up of the frame; and when it is considered that with scarcely a variation the same characteristics are present; that day after day the whole time from 9 o'clock in the morning to near sunset may be spent in the open air, with just as much exercise as may suit the ability or inclination of each person; that the attention is always agreeably occupied by the wonderful monuments of antiquity, the novel features of the country or the incidents of the voyage—all considered, it is not easy to con-

ceive any series of practicable conditions more conducive to the establishment of health.

The accumulated experience of recent years does not fail to corroborate these alleged beneficial effects of a residence in Egypt on the constitutions of invalid visitors. It is rare that the invalids who come here for general delicacy, affections of the chest and throat, or rheumatism have not to tell of improvement or radical cure.

Whatever benefit is to be expected from climate in certain forms of disease, is in all probability more likely to be met with in Egypt than elsewhere.

CHINA.

(Report by R. A. JAMIESON, M.A., M.D., etc., of Shanghai.)

It is an astonishing fact that the Chinese nation, which has enjoyed civilisation, and even a certain measure of cultivation, for at least twenty-three centuries, should never have arrived at anything resembling a rational system of medicine. The faculty in China is composed mainly of men who have failed to obtain the literary degrees which, in theory at least, jealously guard the entrance to the higher grades of society. Its members are regarded with hardly concealed disdain by the educated classes; and therefore the sons of men who have gained wealth in unofficial employments seldom, if ever, (and I believe never) strive to swell its ranks. There is absolutely no system of medical education. A dead body is never opened for any purpose whatsoever. Observation, in the strict sense of the word, has never been directed to the phenomena of disease; and there is, therefore, not only no pathology founded on morbid anatomy, but also no system of therapeutics founded upon clinical experience.

The Chinese have names for small-pox, measles, rheumatism, and a few other diseases of constant or nearly-constant physiognomy. Under their name for leprosy they include many strumous, cancerous, and syphilitic affections presenting resemblances in tissue destruction which render the confusion at least excusable. But once outside these limits, there is merely chaos. Thus, the nosology includes *chi-ping*, which simply means "violent disease;" *lao-ping*, meaning "exhausting disease;" *shang-han*, which is characterised by great heat of skin, and so on. Were cases ever described in writing, the same disease would therefore in all probability find as many names as there were writers.

Nor is this condition of things to be wondered at when it is remembered that one Chinaman becomes a doctor just as another Chinaman becomes a cobbler, the only difference being that the cobbler has had some previous training, which the doctor has not; his sign-board is his sufficient and sole diploma. Having established himself by means of a sign-board, the native doctor procures a few books of recipes, and one or two others treating of the male and female principles of nature. By means of these he is enabled to astonish his patients by

the use of an obscure jargon, while he usually takes care to prescribe such simples as will at least do no harm.

Such is the condition of medicine in China ; but to English readers it may seem incredible that this utter absence of medical education, with all its inevitable consequences, should be tolerated by a practical and intelligent people. In order to prove the statements I have made, as well as to account for my inability to give any information derived from native sources about disease in China, I sought at the hands of the native physician most esteemed in this place a description of the causes and course of pulmonary phthisis. This description, which has been literally translated for me by an eminent Chinese scholar—the Rev. Canon McClatchie, is as follows:—

“Man is formed from the five elements—metal, fire, water, wood and earth. The lungs belong to metal, and rule over the breath and skin. The heart belongs to fire, and the kidneys to water. When the water cannot control the fire, the latter ascends and cuts through the metal, causing cough and excessive perspiration. The liver belongs to wood, and is the receptacle of the blood. Fire cuts through wood, and hæmoptysis occurs. Hence consumption manifests itself chiefly in spring and autumn. When the disease is of long standing the body becomes emaciated, and the face white, in consequence of the breath and blood being attenuated. The stomach belongs to earth, and rules over the five viscera. Wood cuts through earth, and then the stomach becomes deteriorated, producing loss of appetite.”

Having thus accounted for my neglect of what might otherwise be believed to be a fruitful source of information, I will give in the following pages as fair a summary as possible of the observations relating to chest diseases made by foreign physicians practising in China.

According to Surgeon-General Gordon, C.B., whose opportunities for coming to a correct conclusion on the point have been exceptionally good, affections of the heart and great vessels are infrequent among rice-eating peoples. The experience of practitioners in China, who as medical missionaries, see a vast number of native patients, bear out this statement. Dr. Shearer, who for several years had charge of hospitals for natives on the river Yangtze, asserts that out of about 16,000 cases prescribed for by him, only fifty were cases of organic disease of the heart or aorta. And, judging from the reports periodically issued by the physicians practising in the north (Pekin, Tientsin, Newchwang, Chefoo), on the Yangtze (Hankow, Kingkiang, Chin-kiang, Shanghai), on the coast (Ningpo, Foochow, Takow, Amoy), and in Canton, it would appear to be the general rule that instances of heart disease stand in a very small ratio to the total number of native patients prescribed for. Thus out of 141,000 native patients

treated in Pekin, Chinkiang, and Shanghai, the classification of whose cases I have before me, only fifty-nine are entered as suffering from organic disease of the heart. On the other hand, out of a classified list of 38,000 cases treated in Hankow alone, I find 244 entries under "heart disease." It is obvious that no numerical conclusions can be drawn from these figures; but they are at least sufficient to show that the natives of this country enjoy a noteworthy immunity from cardiac affections. This comparative immunity is accounted for by the simple mode of living which prevails among the Chinese, their temperance, their phlegmatic constitution, and the more or less out-door character of their operations.

I can find among the scores of native-hospital reports which have come into my hands during the past fourteen years, only one case of aortic aneurism which, on account of any rarity in its course seems worthy of notice. It is reported by Dr. Kerr, of Canton. The patient was a man, thirty years old, admitted into hospital on the 19th September, 1874, with a large pulsating tumour on the back. He died on the 22nd October from exhaustion. The post-mortem showed that an aneurism of the arch had formed an opening about an inch in diameter between the ribs on the left side. Through this opening it penetrated into the tissues of the back, displacing the scapula, and forming a tumour which covered a space six inches in diameter.

When, however, we turn to the records of practice among foreigners the case is far different. To begin with Shanghai: In the General Hospital for foreigners, between 1871 and 1874, there were 1376 patients treated. Out of these, twenty-six suffered from organic disease of the heart, and fourteen from internal aneurism. From October, 1871 to September, 1874, there was a total of 297 deaths from disease among adult foreigners resident in Shanghai. Of these, fifty are entered under diseases of the heart and great vessels; and of this fifty, twenty-one are specially assigned to aneurism. There were, besides, forty-two uncertified deaths among adults, a certain number of which were, at least by popular report, attributed to internal aneurism. I have no certain means of separating the thoracic from the abdominal aneurisms, but out of six fatal cases of internal aneurism in my own practice, five were thoracic and one was abdominal. I imagine that this fairly represents the ratio. At an eastern settlement, where everybody knows everybody else, a prevailing type of disease speedily becomes the topic of general conversation, and hence the extraordinary prevalence of cardiac and aortic disease has not only much exercised the medical practitioners here, but has caused a good deal of public anxiety. It is to be remembered that the average of age among resident adult foreigners is low, certainly not exceeding thirty-three years. The victims of aneurism have mostly been men in the prime of life, so that "senile degeneration" to which people could reconcile themselves, has had nothing to do with

the occurrence or fatality of the disease. All sorts of explanatory theories have been put forward. Men here work hard and play hard. That is to say they throw as much energy into the pursuit of pleasure, in the way of athletic sports and such like, as they do into the pursuit of business. There is thus much constant strain both mental and physical. The summers in China are very hot, necessitating almost complete abstinence from outdoor exercise during three months of the year. But with the first appearance of cooler weather, training suddenly begins, and is carried on with an enthusiasm reaching rashness. There is, of course, a certain amount of syphilitic disease always present. Men live well, and drink quite as much wine as is good for them, and perhaps more, though intemperance is certainly not a prevailing vice; and finally, Shanghai is essentially malarious, the periodic fever entering largely into the returns of sickness. Hence while some, supporting their opinion by Murchison's authority, are disposed to attribute much of the cardiac and aortic disease to the abuse of alcohol and stimulating food; and others, following Lancereux and Duroziez, bring forward malarial poisoning as the efficient cause, the majority point to physical strain, either sudden or prolonged, as the most essential factor, and a few speak mysteriously of syphilis as having much to do with the matter. But, in fact, heart disease and aneurism occur here with equal frequency among people adopting the most diverse modes of life, among the temperate and the intemperate, the active and the sedentary, among those who have suffered from malarial fevers and those who have escaped, and finally among men tainted with syphilis and men who have never suffered from the disease. From every port in China we hear of aortic aneurisms as swelling the death rate among foreigners; yet by a curious coincidence, if it be only a coincidence, Hongkong (where the conditions of life are the same as at the China ports) appears to enjoy a singular immunity, for out of 5,774 foreign patients treated in three hospitals in the colony for the seven years 1867 to 1873, only four were, according to the published reports, sufferers from aneurism.

It is almost needless to say that every mode of treatment, appearing to hold out a chance of cure or alleviation, has been applied as well in hospital as in private practice; but I am not aware of a single instance where more than the most temporary relief was obtained from rest, diet, medication, or galvano-puncture.

The great majority of the natives who seek advice at the foreign hospitals for Chinese, are ill clothed, ill fed, and ill housed. Moreover, along at least two-thirds of the China sea-board, the range of the thermometer is very wide, tropical heat in summer being succeeded by almost arctic cold in winter. It is not to be wondered at, therefore, that bronchitis and pneumonia are of common occurrence, and that phthisis occasions many deaths, especially in winter and early

spring. Hæmoptysis is remarkably prevalent among the Chinese, but as the larger number of patients relieved cannot subsequently be traced, it is impossible to say in what ratio it is followed by permanent pulmonary mischief. The probability is that it generally is so followed, inasmuch as, once lost sight of by foreign physicians, the sufferers are unable to obtain any suitable treatment.

As regards the North of China, where the soil is generally sandy, and there are no marshes, Mr. Lockhart and Dr. Dudgeon lay great stress upon the prevalence of asthma, cough, hæmoptysis, and "all diseases of the lungs;" noting in addition, "the great numbers dying annually from phthisis." Surgeon-General Gordon dwells on the frequent occurrence of phthisis among the better classes at Tientsin, especially among women, and he ascribes this latter fact to the want of exercise, due to the system of distorting the feet. Dr. Wong (a native of China, who graduated at Edinburgh), writing from Canton, at the other extremity of the empire, and many years after Dr. Gordon's observations, states that although phthisis is not absolutely common among the Cantonese, the wealthier classes, and especially women, suffer considerably from it. He accounts for this by referring to want of exercise, but believes that it is especially due to the long existing demand among the rich for very young and delicate complexioned concubines, whose offspring acquire, even when they do not inherit, a tendency to low forms of inflammation. From districts where malaria prevails, although not to so great an extent as in other parts of China, Dr. Manson reports that phthisis is "very common" among the natives. And finally at Hankow, at Takow, and Shanghai, where marsh miasm is found in perfection, as proved not only by the character of the ground but by the type of disease most common, phthisis is very largely observed. Experience in China is, therefore, decidedly opposed to the doctrine of an antagonism between phthisis and ague. Acute affections of the chest, when treated in foreign hospitals, are not unusually fatal, but I am informed, on good native authority, that bronchitis and pneumonia yield a very large mortality both in town and country, not only among the aged but also in the prime of life. I may remark, in passing, that Chinese practitioners employ arsenic in the treatment of asthma, its effects having probably been accidentally observed among the people employed in subliming the metal.

The testimony of all the foreign practitioners in China who have written on the subject is unanimous as to the rarity of phthisis *originating here* among foreigners. In my own practice, during the last five years, I have had two cases of phthisis florida, the outcome of catarrhal pneumonia, with cheesy infiltration, but in every instance of *chronic* phthisis which has come under my care, the disease has been imported. It is to be remembered that the vast majority of adult

foreigners here are still young; that up to recent times they were really selected lives, inasmuch as delicate men were not sent from home to join mercantile houses in the public services, and delicate women seldom married with the prospect of life in China; and, also, that all the comforts as well as all the necessities of life are within everybody's reach. Nowhere in the world are medical services more freely rendered to those who are unable or unwilling to pay for them, and that not only in hospital but in private. Few people, therefore, if any, neglect themselves where timely advice and treatment may avert the onset of serious disease. The records of the General Hospital show that out of 1,376 patients treated between 1871 and 1874, there were 64 cases of phthisis; but as the hospital wards are mostly filled from the shipping in port, these cases were almost exclusively imported. From October 1870 to September 1874, 23 deaths occurred in Shanghai from this disease out of a total number of 297 deaths among adults. The practitioners at the southern ports, when enumerating cases of phthisis, almost invariably note that they have occurred among the shipping; in other words, that they were imported. During the thirteen years from 1860 to 1872, there died at Peking seven adult foreigners from phthisis, the total number of deaths being forty-five, and the average foreign population 130. Some of these cases occurring among the members of the Roman Catholic mission, who as a rule spend many years in the places where they are stationed, may have originated in Peking, but as to this point I have no information.

But the practitioners at all the ports are equally unanimous in insisting upon the unfavourable conditions under which patients affected by phthisis find themselves as soon as they reach China. The disease runs an extremely rapid course. Intercurrent attacks of pneumonia hasten the event, the mode of death being by rapid but gradual exhaustion, rarely intensified by profuse hæmorrhage.

INDIA.

[*.* *As the complete report for India had not arrived at the time of going to press, only the following fragments can be given in this volume.*]

CLINICAL MEDICINE.

Cirrhosis of the Left Lung.—The following case is reported by Surgeon H. Mallins, M.B. :—

“John Farrell, aged forty-five years, an army pensioner, was admitted into the General Hospital, Calcutta, on the 9th of December, 1873 (under the care of Surgeon S. C. Mackenzie, M.D.), suffering from pain in the right side of the chest, and constant cough with yellow purulent expectoration. On examination he was found to have pneumonia of the base of the right lung. After a few days, under ordinary treatment, the symptoms abated, and the base of the lung again became permeable to air. The observation of a marked contrast in size, between the two sides of his chest, led to a careful examination of the patient's history and actual condition. He has been in India twenty-six years, twenty-one of which were spent in the army. During his residence in this country, he has suffered from fever, dysentery, and cholera; he does not remember having had any affection of his liver. A short time before leaving his regiment, he was admitted into hospital for ‘a bad attack of his left lung;’ he had a severe cough, and spat a good deal of blood; his disease was called bronchitis. That was seven years ago. He remained in hospital a month and a half, and was then discharged with a pension, as his period of service had expired. Ever since his left side has been ‘bad;’ whenever he gets a cold, his cough, which never leaves him, becomes worse, and he often spits blood. He has been unable to do any work since, owing to dyspnoea. Three years ago his kidneys were attacked; he had severe lumbar pains, scanty urine, and general anasarca. After a few months he got better, but still suffers from lumbar pains and frequent micturition.

“*Present Condition.*—The patient is a tall, sallow-complexioned man, of fair muscular development. His weight on admission was 9st. 5lbs. He occasionally suffers from headache and vomiting. His sight has been failing lately. Appetite good; sleeps well; has no night sweats, no emaciation, no pyrexia. The average temperature

in the axilla is 99° Fahr.; pulse 80. His cough is most troublesome in the morning. It then commences with a paroxysm, during which he expectorates a considerable quantity of greenish mucus. It is sometimes nummular, and generally has a disagreeable taste.

"He complains chiefly of his chest. The left chest is flattened in front to a marked degree; this flattening is most obvious immediately below the clavicle. Posteriorly this side presents a marked contrast to the right, which seems bulged out. The left side expands but slightly during respiration. It measures $2\frac{1}{2}$ inches less than the right, the former, at the nipple line, being $16\frac{1}{2}$ inches, the latter 19 inches in circumference. On percussing the left chest, with the exception of the infra-clavicular and supra-mammary regions, the whole side is found to be dull. Vocal fremitus is increased over the region of dullness. Over the resonant part, the respiration is chiefly puerile, except at one spot above the nipple line, where, over a small area, a crepitus is rarely absent. Over the rest of the lung the breathing is bronchial, and in some places so feeble as to be almost inaudible.

"The right chest is hyper-resonant on percussion, and the breath-sound is clear, but exaggerated all over.

"The apex beat of the heart is in its normal position. Its sounds are normal. The liver on examination seems to be diminished in size; the line of hepatic dullness commences three inches below the nipple line, and does not extend downward more than $2\frac{1}{2}$ inches. When admitted, there was some tenderness over the liver, but it is gone now. He has suffered from piles the last 15 years. The spleen is not enlarged; he still suffers from lumbar pains, which are very constant; he has to get up four or five times during the night to pass water; he occasionally has epistaxis, always from the right nostril. The examination of the urine gives the following results:—Colour pale yellow, acid, sp. gr. 1014, albuminous; sediment consisting chiefly of crystals of phosphate of lime; no tube casts.

"February 12th.—The patient's condition is slightly improved. He has gained 6 lbs. in weight since his admission. The physical signs continue as before. The treatment has been chiefly tonic.

"This case furnishes sufficient data for the diagnosis of a cirrhotic condition of the left lung. The chronicity of the case, it having commenced seven years ago, the nature of the physical signs, which are more marked over the base than the apex, and, what is most important, the absence of emaciation, night sweats, pyrexia, and disordered digestion, *i.e.*, the constitutional symptoms of tubercular phthisis, sufficiently indicate the morbid condition of the lung.

"The occurrence of disease of the kidneys in a patient already the subject of cirrhosis of lung, together with the characters of the urine as above mentioned, would seem to point to a similar condition of

these organs, while the diminished size of the liver suggests the idea of commencing cirrhosis in that viscus. It is not improbable that the case is one of 'constitutional cirrhosis' affecting the lung, liver, and kidneys."—("Indian Medical Gazette," April 1, 1874.)

Dr. F. C. Nicholson reports two cases of pneumo-thorax.

Case 1.—Tubercular phthisis, perforation, pneumo-thorax, and empyema. Discharged from hospital on 128th day, doing well. Death six weeks afterwards.

Case 2.—Shot-wound of chest, pneumo-thorax. Death on the third day.

Dr. Nicholson remarks that Case 1 illustrated the relief to the distressing constitutional symptoms which often ensues when perforation of the pleura and pneumo-thorax occur in the course of tubercular phthisis. Hectic fever, harassing cough, and profuse muco-purulent expectoration, which had been previously rapidly wearing away the patient's strength, remained quite in abeyance for several weeks after the perforation took place, and during this time some flesh and strength were gained.

In Case 2, a discharge of small shot from a small pistol caused the wounds; only three shots were found to have penetrated the lung, and very slight inflammation had been set up; little or no hæmorrhage or effusion of serum had occurred into the pleural cavities. But the external wounds had been sealed up. Paracentesis was not resorted to, and the patient died of pressure of air in the chest.—("Indian Annals," No. xxxiii.)

Daily Range of Normal Temperature in India.—Dr. Crombie ("Indian Annals of Medical Science," No. xxxii.), arrives at the following conclusions from numerous observations:—1. The temperature may be ascertained in the axilla for all practical purposes in ten minutes. The mean error after this time is only 0.153° Fahr. 2. The more recent observations of normal temperature in England show that the mean temperature of health in temperate climates has hitherto been over-estimated, and that, instead of being put down at 98.40° or 98.60° , as in our text-books, it does not exceed 98° Fahr. 3. One of the effects of residence in the climate of Lower Bengal on the health of Europeans is to raise their temperature from 98° to 98.5° Fahr. 4. Change of climate does not influence the character or extent of the daily fluctuation of temperature in health, which observes a curve running parallel with that of European observers, but half a degree higher, and amounts in India, as in England, to about 1.3° Fahr., ranging in India from 97.7° in the early morning to about 99.0° in the evening, which are the periods of minimum and maximum temperature respectively in both countries. 5. Under all circumstances, not exceeding strictly physiological limits and including gentle exercise, a variation of nearly 2° Fahr. must be allowed for at

every hour of the day, and an amplitude of fluctuation of body-temperature of 2.6° Fahr., viz., from 97.3° to 99.9° Fahr. in the course of the twenty-four hours. 6. The chief causes of these variations from the usual curve are (1) exercise and food, which raise the temperature; and (2) sleep at unusual hours, which depresses the body-temperature. Excluding these causes of deviation, the variations of temperature at each hour of the day are limited to 1° Fahr., that is to say, to half a degree on each side of the normal daily curve of temperature of Europeans in India. 7. The effect of exercise in raising the temperature of the body is invariable and generally considerable, and occurs at all periods of the day; even after such gentle exertion as that of dressing, or changing from the recumbent to the sitting posture, a rise of temperature is observed. The effect of food is less marked, but is distinct after the morning and mid-day meals. It is lost in the downward tendency of the normal curve of daily fluctuation which takes place at the time of the evening meal. The diminution of temperature during sleep is considerable at all times. 8. The temperature of the body is raised by whatever hinders radiation and evaporation from the surface, as a warm atmosphere or thick badly conducting clothing. It is lowered by whatever promotes radiation and evaporation from the surface, as light clothing, the use of a punkah, or a prolonged cold bath. 9. The temperature of natives in India, including East Indians, is higher than that of Europeans resident in it by about half a degree Fahr. 10. The temperature of children is lower than that of adults during the first week after birth. Immediately after birth a very rapid and great diminution of temperature occurs, especially in feeble infants, amounting to 4° or 6° Fahr. in half an hour. This depends on exposure (radiation and evaporation) and the inability of the calorific function suddenly called into force to compensate for the sudden removal of the external (maternal) sources of warmth which occurs at the moment of birth. The temperature of children is liable to greater variations than that of adults from similar causes acting on them afterwards. The health of a European in India may be regarded with suspicion if his temperature is persistently above 98.5° Fahr. in the early morning, or 99.5° Fahr. in the evening, and is not due to exercise. A temperature of 99.0° Fahr. in the morning, or 100° Fahr. in the evening at rest is not incompatible with perfect health in the case of natives. 12. These remarks refer to temperatures taken in the mouth. A deduction of 0.25° should be made from these figures in estimating the value of an observation made in the axilla, or 0.4° should be added if the temperature is taken in the rectum.—("London Med. Rec.," Nov. 25, 1874.)

ETIOLOGY.

Etiology of Goitre.—Dr. J. B. Wilson, from enquiries into the causes of goitre, considers that the purity of the water consumed by the inhabitants of the district in which the observations were made (a hill station of the Punjaub, on one of the lower ranges of the Himalayan mountains), amongst whom goitre has existed so long and is so daily re-appearing, naturally leads one to conclude that the disease is not connected with the composition of the water at all. There is strong evidence in favour of the theory that ordinary goitre, like the ex-ophthalmic variety, is entirely a circulatory disease, and that its tendency to occur is encouraged, and in some cases induced, by the following conditions:—

1st. Active occupation, necessarily so much more severe in hilly districts, seems to influence the production of this disease to a great extent, as is shown by its so frequent occurrence in those who lead a laborious life, or pursue active duties in a constrained position, and by the comparative immunity there is in those oppositely circumstanced, except they are in a relaxed and depressed state of health. The effects of violent exercise upon the circulation and blood vessels generally are well known, and it is only necessary, on this point, to refer to the relation of the thyroid gland to the large vessels of the heart, its remarkably large supply from them, and its dense capillary structure, and consequent ready liability to enlargement from the dilatation of its vessels under the conditions produced by violent and prolonged exercise.

2nd. The effect of elevation above the sea-level upon the circulation in people residing in high mountainous districts, seems to be favourable to the production of goitre, and in some cases to be the chief cause of the disease. The frequent complaints of people, after arriving from the plains at a high elevation, of palpitation, sense of giddiness, and frequent bleeding at the nose and the invariable increase of the rapidity of the pulse, are all symptoms which point to the effects of diminution of force upon the balance of the circulation. Nor is the loss of balance difficult to account for, when we remember that at the sea-level there is a pressure of 15 lbs. on the square inch; and, calculating that the atmosphere extends forty-five miles above the surface of the earth, the loss of pressure resulting from this elevation would be equal to about 6·06 oz. avoirdupois on the square inch, or a little more than one ounce loss of pressure on each square inch of the body per every thousand feet ascended. The pressure would, in fact, be a little less; for this calculation supposes the forty-five miles of air to be of uniform density.

3. The increased frequency of the circulation, invariably noticed in the subjects of goitre, is further evidence of its resulting chiefly

from a more active force conveyed to the circulation, and so to the thyroid gland, when the resistance necessary to overcome that force does not exist in it; in a similar way, as, in one subject, aneurism takes place as the result of violent exercise or from constrained positions; or as, in another, enlargement of the spleen, when subjected to a determination of blood.

4. The fact that the periods of life when this disease most frequently occurs are those when the circulatory powers are in their greatest activity is not, Dr. Wilson thinks, of trivial import, in support of the theory here submitted as the primary cause. There is the testimony too, that when the forces upon the circulation resulting from violent exercise in hilly districts, and residence at a great elevation from the sea-level, appear to be the chief causes necessary for the production of this disease, those engaged in the more active life are the more subject to it, viz., the male population; whilst, in Dr. Wilson's experience, concerning the occurrence of the disease in the plains, where it is of infinitely less frequent occurrence, the subjects more liable to it are females, whose constitutions are usually more relaxed and unresisting than those of males, and whose circulation, moreover, is subject to more variation of forces, consequent upon the changing phenomena of menstruation and pregnancy.

5. If the conclusions arrived at from these inquiries into a limited number of cases hold good generally, the prevalence of this disease, once recorded to have taken place in a prison at home, may have arisen, not from the water that the prisoners drank, and which was blamed as the cause, but from the excessive exercise at the tread-mill or some other violent labour, and this, too, whilst the inmates were on prison rations.

In conclusion, and with regard to cretinism, the question naturally arises, whether it is found to be generated only in the offspring of goitrous parents? The cases of goitre forming the subject of the present paper favoured this idea?—("Medical Times and Gaz.," Dec. 19, 1874.)

MATERIA MEDICA AND THERAPEUTICS.

Milky Juice of Jatropha Curcas a Powerful Hæmostatic.—By Baboo Udhoi Chand Dutt, Civil Medical Officer, Noakhally.

"The milky juice of the *Jatropha curcas* (Bhággherendá B.) is used by the natives for the purpose of arresting bleeding from wounds. A correspondent of the "Bengali Medical Journal," some time ago, published a case in which it was said to have checked severe bleeding from a wound immediately on application. I had heard of this use of the plant years ago, but until lately did not test its virtues. Having done so now, it appears to me to be the most powerful hæmostatic that we know of, as will appear from the following cases:—

"Tameezudee, aged 40, was admitted into hospital, on the 14th July, for a severe contused wound on the head, three inches long, and exposing the bone. Erysipelas of the scalp and head set in, but it was subdued by large doses of liquor ferri perchloridi. A limited abscess, however, formed a little below the wound over the forehead. This was opened on the 22nd July. After the pus was evacuated, blood began to well out from the cavity of the abscess in a copious stream. Pressure with wet lint was applied for a considerable time without success. Besides, owing to the great tenderness of the part, pressure caused intolerable pain to the patient. Alum lotion, turpentine, and lastly injection of strong solution of perchloride of iron were successively tried but without any appreciable effect. At this juncture, and while I was thinking of laying open the cavity of the abscess for securing the bleeding vessel, our vaccinator, who had once stopped bleeding from a cut in his own hand by the juice of Bhágbherendá, suggested its use. A little of the juice was procured from the hospital hedge, and a bit of lint wetted in it introduced into the abscess. The blood seemed to be at once curdled up, and the hæmorrhage stopped immediately. The abscess was shortly after dressed with poultice, and the patient sent to bed. He was discharged cured on the 16th instant.

"Moonshee, aged 30, was brought to hospital on the night of the 14th instant, with a broken piece of bougie impacted in his urethra behind the scrotum. He said that he had stoppage of urine from a calculus having entered and blocked up the urethra, and that a village quack, with a view to push the calculus back to the bladder, had introduced an old bougie. It broke in the urethra, and the broken portion was left in it. Repeated attempts were made to press it out, and an incision was also made in the penis for extracting it through the opening, but without success. These manipulations caused the penis to be inflamed and swollen, and the patient was at last brought to hospital suffering from retention of urine for two days, the bougie impacted within the urethra, and the penis inflamed, swollen, and cedematous. A full dose of chloral being given for the night, the patient was operated upon the next morning. An incision was made in the urethra in front of the bougie with the aid of a grooved director introduced through the meatus, and the bougie and calculus extracted through it. Owing to the highly congested state of the parts, bleeding from the surface of the wound was very copious. Pressure with wet lint was tried for a time but without success. A bit of lint, moistened with the juice of *Jatropha curcas*, was now applied to the wound, and after this not another drop of blood trickled from it. I trust that a perusal of the above cases will induce others to test the efficacy of this wonderful hæmostatic, and to bear their testimony to it. The milky juice of the *Jatropha curcas* does not cause pain or act

as a caustic. It simply curdles up the blood, and covers the bleeding surface with a tenacious layer.

"Drury, in his 'Useful Plants of India,' 2nd edition, p. 268, observes, 'The juice of the plant is of a very tenacious nature, and if blown forms large bubbles, probably owing to the presence of Caoutchouc.' He also states that 'the milky juice of the plant is said to possess a healing and detergent quality, and to dye linen black.' I may add that it has no injurious effect on open wounds, and that after its application they heal as readily as if they were treated with water dressing alone."—"Ind. Med. Gaz.," October 1, 1874.)

Indian Medicinal Plants.—By Surgeon B. Evans, Civil Surgeon, Seoni.

Jatropha Curcas.—N. O. Euphorbiaceæ. "The juice of this plant is used by natives to arrest bleeding from wounds, etc. The seeds possess purgative properties; and the oil obtained from them is said to be useful in cutaneous affections and in chronic rheumatism. Not long since my attention was attracted to a notice of this plant in the "Indian Medical Gazette," by Mr. Udhoy Chand Dutt. He reports that the milky juice of this plant is a most powerful hæmostatic. * * * Before this notice appeared, I had the following case under treatment:—"Bugloo, aged twenty-five years, was admitted into the Seoni Main Dispensary on the 3rd October, 1874. He was suffering from a large open abscess in the heel of the right foot; the abscess had resulted from an injury. The patient stated that it was not so much the pain and swelling of the foot that caused him anxiety, but the frequent hæmorrhages from the abscess. On removing the rags, etc., that enveloped the foot, hæmorrhage (evidently venous) at once occurred. Immediately above the internal malleolus I found a pulsating tumour about the size of a pigeon's egg; pressure on the posterior tibial artery on the proximal side of the swelling at once arrested the bleeding; the superficial veins in the neighbourhood were enlarged, and a faint thrill could be detected in them. Taking into consideration the situation of the tumour, and the character of the hæmorrhage, I diagnosed the case as one of varicose aneurism. The bleeding from the tumour was easily checked by the application of the tourniquet, but the distress occasioned by the pressure of the instrument was so great that before evening the patient begged that it might be taken off. After this instrumental and digital pressure were resorted to alternately. In the meantime the abscess in the heel was gradually filling up. On seeing Mr. Udhoy Chand Dutt's paper, I determined to give the *jatropha* juice a trial, and accordingly, on the 12th October, I injected a drachm of the juice into the tumour by means of the hypodermic syringe; the result was astonishing; in twenty minutes' time the pulsation was so faint that no non-professional person could have detected it; and by evening all pulsation had ceased, a good

firm coagulum had been produced, the nozzle of the syringe was retained in the tumour for about ten minutes; and on removing the instrument just one drop of blood escaped through the puncture; a small piece of dry lint and a piece of sticking plaster were applied to the puncture. No ill effects resulted from the injection of the juice. I was anxious to watch the result of this treatment further, but on the evening of the 16th October the patient left hospital without permission, considering that it was no longer necessary for him to stay in Seoni. People from his village inform me that the man is now (fully three months after the operation) quite well. This is only a single case it is true, but it illustrates how a very simple and speedy operation may be had recourse to in place of others more serious. We all know what a difficult thing it is to treat aneurismal affections. Holmes, in his *System of Surgery* (Vol. iii., p. 512), has the following passage:—"The discovery of a fluid of great coagulating power, and devoid of irritating properties, is a desideratum in this method," *i.e.*, the treatment of aneurisms by injections. I make no pretensions to originality, but I ask that others with better opportunities than myself may give this drug a trial.

"Two children were brought to me for the purpose of having the frænum of the tongue snipped, and in both these cases, after the operation, I employed *jatropha* juice as a styptic; there can be no doubt of the value assigned to it by natives. The *jatropha curcas* is a very common hedge plant. Drury states that the juice "is of a very tenacious nature, and if blown, forms large bubbles, probably owing to the presence of caoutchouc." "A decoction of the leaves is used in the Cape Verd Islands to excite secretion of milk in women."

Carica Papaya.—N. O. Papayacæ, Pawpaw-tree.

"The milky juice of the unripe fruit has long been known as one of the best vermifuges; and in the West Indies, the seeds powdered are used for the same purpose. The seeds are said to possess emmenagogue properties also. Even the ripe fruit is said to act as an abortifacient, and pregnant women are therefore prohibited eating it. The juice of the pulp (of the ripe fruit I imagine) removes, it is said, freckles caused by exposure to the sun. Browne, in his *Natural History of Jamaica*, states 'that water impregnated with the milky juice of this tree is thought to make all sorts of meat washed in it tender; but eight or ten minutes steeping, it is said, will make it so soft, that it will drop in pieces from the spit, or turn soon to rags in the boiling.' Drury says that 'this circumstance has been repeatedly confirmed; and, moreover, that old hogs and old poultry, which are fed upon the leaves and fruit, however tough the meat they afford might otherwise be, are thus rendered perfectly tender and good, if eaten as soon as killed, but that the flesh passes very soon into putridity, nay, the very vapour of the trees serves the purpose;

hence, many people suspend the joints of meat, fowls, etc., in the upper part of the tree, in order to prepare them for the table. In Barbadoes, the farmers mix the milky juice with the drinking water for their horses, in order, as they express it, *to break down the blood*; and it is a remarkable fact that the effect of this dissolving power in the fruit is not confined to muscular fibre, but acts on the circulating blood.' In 1866, when I visited the island of Barbadoes, I found that the unripe fruit picked was largely used as an article of diet. In this country it is not only eaten pickled, but also curried. I can assure my readers that the unripe fruit makes a very palatable *chijki* (vegetable curry). I have employed the milky juice of the unripe fruit in the treatment of splenic and hepatic enlargements, and with good results. I have treated sixty patients with this drug, and in thirty-nine instances a cure was effected; in eighteen cases the results were not reported; and in three cases (of enormously enlarged spleens) relief was afforded. The mode of administration is this:—About a teaspoonful of the juice is collected and mixed thoroughly with an equal quantity of sugar; this mass is divided into three boluses; one to be taken morning, noon, and evening. For children, a single drop of the juice, mixed with sugar, is sufficient. The pulp of the unripe fruit (the rind being removed) 'mashed' up with hot water might be applied as a poultice over the enlarged gland. On this external application, however, I do not place much reliance. No ill effects result from the internal administration of the drug. Some of the patients treated complained of a feeling of heat in the stomach, nothing more. When symptoms of gastric or intestinal irritation occur, I have found it necessary to combine opium or hyoscyamus with the juice. The drug appears to me to act as a tonic and deobstruent. My plan for ascertaining that there has been an actual diminution in the size of the enlarged gland, was to mark off with nitrate of silver the limits of the affected organ when the patient applied for treatment; and after about a fortnight or month, percuss and mark off again in the same way. In very bad cases, I have seen a decrease of from half an inch to an inch in perpendicular dulness. Patients have told me again and again that they felt considerably lighter in the side; and that (*ab khana hazm hota*) their digestion was now good. I believe that the drug is most active in cases where the stage of ague-cake, *i.e.*, the genuine amyloid spleen, has not yet been attained—in fact, when the deposit in the gland is still albuminoid. (See my paper on Ague and its sequelæ in 'Indian Medical Gazette' for May and June, 1871.) It acts much more rapidly than the hydro-chlorate of ammonia, the bromide of potassium, or the external application of the bin-iodide of mercury ointment. From twenty to twenty-five days is the longest time that a patient is generally kept under treatment. A nutritious and liberal diet is

also an essential adjunct in these cases."—"Ind. Med. Gaz.," Feb. and March, 1875.)

Hypodermic Injection of Chloral in Spasmodic Asthma.—Surgeon-Major N. B. Baillie, of Bhaugulpore relates the following case:—

"A scantily clothed woman was carried into the dispensary one cold morning and deposited on the floor, her painful efforts to breathe absorbing all her attention, and rendering her quite unable to give any account of herself; from her friends it was learnt that she had been suffering for some weeks past from more or less difficult breathing which had culminated in the present most severe attack some twenty hours previously. Solution of chloral containing three grains in twenty minims of water, was at once injected subcutaneously at the back of the neck with so much advantage that, ten minutes later, the spasm had entirely ceased, and easy natural respiration had taken its place; the woman expressed her sense of the relief afforded her, and, half an hour afterwards, walked off to her house with her friends; she was seen again a few days later, having remained quite free from the affection, and as she has not been heard of since, it is probable that the attack has not recurred.

"Several other cases of less severity than this are stated to have been treated with equal benefit."—"Ind. Med. Gaz.," June 1, 1874.)

A Complicated Case of Pneumonia, in which obstinate Hiccough was relieved by Chloral, under the care of Surgeon-Major J. Dougall, M.D., occurred in Port Blair Penal Settlement Hospital, Ross Island.

A life convict, No. 14,198, Khoobee, was admitted into hospital on the 23rd February, suffering from pneumonia, for which complaint he was treated and appeared in a fair way to recover. On the seventh day of admission, the patient had a persistent attack of hiccough which was not complained of, as a drink of cold water or congee gave him temporary relief. But on the next day, finding that the hiccough continued and was rather annoying to the patient, draughts of ether, chloroform, etc., were given, anodyne liniments rubbed down the spine, sinapisms to the epigastric region, followed by a blister without any beneficial results. Dr. Dougall at his morning visit ordered alkaline draughts to be given, believing that excessive acidity of the stomach was the cause: several doses were given without any beneficial result.

In the evening, acute dysentery set in, the patient being called to the stool from ten to fourteen times during the night. Next morning I gave him a scruple of ipecacuanha in the hope of relieving the patient of his obstinate hiccough, but it gave him no relief. The dysenteric symptoms and the troublesome hiccoughs were most distressing to the patient, and he appeared to be sinking from exhaustion; little else could now be done for him, more than good nursing, food, and stimulants frequently given. Towards 8 p.m. of the tenth

day, it occurred to me to try chloral hydrate for the hiccough. I gave him a 40 grain dose in syrup which gave the patient about four hours sound sleep (the patient had not slept since the coming on of the hiccough). On awakening, hiccough returned but not so severe, I then gave a 3ss dose, and repeated it six hours afterwards; after getting four doses (180 grs.) he was cured of the hiccough.

"During the treatment of the hiccough by the chloral, a marked change occurred in the pneumonic and dysenteric symptoms, especially in the latter: the calls to stool were less frequent, and a change for the better in the character of the stools took place. Finding it thus, the chloral was continued, giving 30 grains every six hours. The patient had altogether 190 grains of chloral hydrate and its administration was attended with the most beneficial results. The hiccough was checked and the dysenteric and pneumonic symptoms were greatly modified and ultimately subsided, and on March 30th, the patient was quite convalescent."—("Ind. Med. Gaz.," June 1, 1874.)

Benicassa Cerifera in Hæmoptysis, etc.—By Baboo Udhooy Chand Dutt, Civil Medical Officer, Noakhally.

"This plant belongs to the natural order Cucurbitaceæ. In English it is called Squash or Vegetable Marrow. Its Sanscrit name is Kushānda; Bengalee, Kumra; Hindee, Petha. The large fruit or gourd is a culinary vegetable, and is extensively cultivated all over India for this purpose. The pulp of the ripe fruit is a specific for hæmoptysis, for which it is much esteemed, and extensively used by native physicians. It would appear that the older Sanscrit writers were not acquainted with this property of the article. The Rajnirghanta, the oldest work on therapeutics, gives a long account of its virtues, but does not allude to its use in phthisis or hæmoptysis. Sushruta also does not mention it in his chapters on the treatment of hæmorrhages and phthisis, though the plant is alluded to elsewhere. The more recent compilations, such as Chakra-datta-Sangraha, Sarangadhar, etc., give many preparations of the article, and fully detail its uses. I will now give an account of two of its preparations in common use, and the virtues ascribed to them:—

"I. *Kushānda Khanda, or Confection of Squash.*—In preparing this medicine, old ripe gourds (the older the better) are selected. Those not at least a year old are not approved. The fruits are longitudinally divided into two halves. The pulp is then scraped in thin flakes by an iron comb or scratcher. The watery juice that oozes out abundantly during this process is preserved, the seeds being rejected. The pulp is boiled in its water till softened. It is then tied up tightly in a cloth, and the juice or watery portion allowed to strain through. The softened pulp is dried in the sun, and the strained juice preserved for subsequent use. For preparing the confection, take 12½ chittacks

of the prepared pulp, fry it in 4 chittacks of ghee or clarified butter, add the strained juice, and boil again till the whole is reduced to the consistence of honey. Then put in $12\frac{1}{2}$ chittacks of refined sugar, and heat over a gentle fire till the whole assumes such consistence as to adhere to the ladle. Now remove from the fire and add the following aromatic substances finely powdered:—Long pepper and ginger each $\frac{1}{2}$ chittack, caraway seeds, cardamoms, cinnamon, *tejpat* (leaves of *laurus cassia*), black pepper and coriander, each $\frac{1}{2}$ chittack. Stir briskly with a ladle till cool. Then add honey 2 chittacks, and preserve in a new clean earthen pot. The dose of this medicine is from one to two tolahs according to age and strength of patient. Chakradatta thus describes its uses:—It is useful in hæmoptysis, phthisis, marasmus, cough, asthma, giddiness, dyspepsia, thirst and fever.

“It increases the strength, improves the colour, and removes the effects of age. It heals ulcerations of the lungs, cures hoarseness, and acts as a general tonic.

“II. *Basa Kushānda-khanda* is the name of the other preparation in extensive use. Its principal ingredients are Kushānda and Bāsak (*Adhato da vasica* *). It is prepared as follows:—Take of Bāsak root 1 seer, boil in 8 seers of water till reduced to one-fourth, strain. Then take prepared pulp of squash (prepared as before described) $12\frac{1}{2}$ chittacks, fry it in ghee $\frac{1}{2}$ seer, add to it the decoction of bāsak, and boil over a gentle heat till the whole is reduced to the consistence of honey. Then add sugar 1 seer 9 chittacks, and heat till it thickens to the proper consistence. Now remove from the fire, and add the following ingredients in fine powder:—Mustaka (tuber of *Cyperus rotunda*), āmlaki (dried fruit of *Phyllanthus emblica*), bamboo manna, brahma-yastica (root of *Syphonanthus Indica*), cinnamon, cardamon, *tejpatra* (leaves of *Laurus cassia*) each a quarter tolah; ginger, coriander, black-pepper, long-pepper, each, one tolah, stir well till the confection cools, then add honey 2 chittacks, and preserve. Dose one to two tolahs. Chakradatta says, this medicine is useful in cough, asthma, phthisis, hæmoptysis, hiccough, jaundice, heart disease, and catarrh. These two medicines are commonly used by native physicians for relieving the cough and hæmoptysis of phthisis, and I have had many opportunities of witnessing their good effects. In my own practice I have often found them succeed in putting a stop to bleeding from the lungs and relieving the cough and expectoration of phthisis when our ordinary medicines had failed. Of course they do not radically cure phthisis or prevent its recurrence, but I have no hesitation in saying that any one who uses these medicines for relieving urgent hæmoptysis or troublesome cough and expectoration will find

* “The properties and uses of *Adhato da vasica* were described by me in a paper published in the ‘Indian Annals of Medical Science,’ No. 19. It has since been noticed in the *Pharmacopœia of India*.”

them to be a valuable aid in combating these troublesome symptoms. In a patient under my care, who is now dead, and who suffered from several attacks of profuse hæmoptysis during the course of a strongly developed disease, Kushánda-khanda was the only medicine which seemed to have any beneficial effect on the bleeding. In the last attack of hæmoptysis he had, the bleeding was so copious that I was quite alarmed, and, unwilling to trust to native medicines, I pushed on vigorously with our ordinary medicines, such as gallic acid, sugar of lead, turpentine stupes, etc. Days passed on without relief, and every morning I had the mortification to find from half to a pound of blood preserved for my inspection. The patient now suggested that I should prescribe Kushánda-khanda which had relieved him on previous occasions. The medicine was prepared and given to him, and from that date the blood began to decrease as if by a charm, and quite disappeared in about a week. The patient, a mohurir in the Registry Office, was then able to get out of bed, take leave and return to his native village. He died sometime afterwards of advanced phthisis, but he could not have returned home except for the relief afforded by the confection. Even now I have two patients in the jail hospital, who both had hæmoptysis brought on by tubercular affection of the lungs, and they have both been promptly relieved by the administration of Kushánda-khanda, and are now taking Madras fish-oil with extra diet.

“In Sanscrit medical works, Kushánda is also recommended to be given in hæmatemesis and hæmaturia, but I have no personal experience of its use in these diseases. Among other diseases, it is used in insanity, epilepsy, and suppression of urine. In the last the juice of the fruit is directed to be given along with sugar and nitre. The following preparation is recommended for use in epilepsy:—Take of the juice of Kushánda 18 seers, ghee or clarified butter 1 seer, and liquorice root beaten into a paste, with water, 4 chittacks. Mix these ingredients together, and boil till all the water evaporates. Dose one to two tolahs or more.”—(“Ind. Med. Gaz.,” April 1, 1874.)

HOLLAND.

(*Note from Professor KOSTER, of Utrecht.*)

The list of Dutch medical journals is a very small one. There exists only one journal embracing the whole of medical science:—

1. "Nederlandsch Tijdschrift voor Geneeskunde." (Dutch Journal of Medicine.)

Then the Physiological Laboratories of Utrecht and Leyden give their Reports:—

2. "Onderzoekingen Gedaan in het Physiologisch Laboratorium te Utrecht;" door Professors Donders e Engelmann.—(Researches of the Physiological Laboratory of Utrecht; by Professors Donders and Engelmann.)

3. "Onderzoekingen, etc." (Ut supra; by Professor Heynsius, Leyden.)

A Medico-Physical Society in Amsterdam publishes:—

4. "Maandblad voor de Natuurwe-Lenschatte;" door Professors Gunning, Place, etc.—(Monthly Journal of the Physical and Medical Sciences; by Professors Gunning, Place, and others.)

The Dutch Society of Sciences of Haarlem publishes (in the French language):—

5. "Archives des Sciences Exactes et Naturelles;" rédigées par E. H. von Baumhauer, Secrétaire de la Société, avec la collaboration de MM. Bierens de Haan, Oudermans, W. Koster, etc.

The Royal Academy of Sciences publishes works in quarto or folio, and regularly:—

6. "Verslagen en Mededeelingen (Reports and Treatises), der Koninklijke Akademie im Wetenschapper."

These Journals contain sometimes treatises on subjects of anatomy and pathology from members of the Academy.

In the literature of the past year there is nothing that can be extracted for these Reports.

SOUTH AFRICA.

(Note by DR. J. E. DYER, of Kimberley.)

Aneurism of the Innominate Artery, Treated by Ligature of the Common Carotid and Subclavian simultaneously by Mr. Frederick Ensor, of Port Elizabeth Hospital. The patient recovered satisfactorily from the operation, and experienced considerable relief to pain. Six weeks after the operation it was noted that the bruit was softer and the impulse less, but that the tumour seemed to be rising in the neck, and was giving rise to symptoms of pressure on the œsophagus.

METEOROLOGICAL REGISTER AT KIMBERLEY (DIAMOND FIELDS.)

1875.	9 A.M.			9 P.M.			IN THE DAY.			REMARKS.
	Aneroid Barometer.	Th. Dry Bulb.	Th. Wet Bulb.	Aneroid Barometer.	Th. Dry Bulb.	Th. Wet Bulb.	Max.	Min.	Rain.	
MONTH.										
July	In.	Deg.	Deg.	In.	Deg.	Deg.	Deg.	Deg.	In.	
1	26.36	50	46	26.28	51	46	70	32	0.0	
2	26.24	51	46	26.22	46	43	67	35	0.0	
3	26.30	40	39	26.34	46	43	67	32	0.0	
4	26.48	45	43	26.46	45	42	67	34	0.0	
5	26.50	50	46	26.42	47	44	67	37	0.0	
6	26.40	49	46	26.30	44	41	68	33	0.0	
7	26.32	45	42	26.22	49	46	67	35	0.0	
8	26.17	49	45	26.19	47	46	63	40	0.6	
9	26.26	43	42	26.28	42	40	55	35	0.0	
10	26.36	40	38	26.34	45	41	64	30	0.0	
11	26.36	51	46	26.27	50	43	69	35	0.0	
12	26.18	48	44	26.19	44	40	64	38	0.0	
13	26.26	38	36	26.26	41	37	61	30	0.0	
14	26.27	41	37	26.20	42	38	65	30	0.0	
15	26.14	38	34	26.20	41	38	57	29	1.26	Snow with thunderstorm.
16	26.29	39	38	26.32	41	41	43	32	0.21	Wind S.
17	26.41	43	43	26.40	47	45	61	32	0.0	
18	26.42	47	46	26.41	48	46	64	36	0.0	
19	26.40	49	47	26.36	48	45	66	37	0.0	
20	26.38	50	47	26.33	50	47	68	38	0.0	
21	26.31	48	45	26.29	52	47	71	40	0.0	
22	26.29	50	46	26.18	54	50	68	46	0.0	
23	26.23	48	45	26.37	45	40	64	40	0.0	
24	26.42	42	37	26.40	47	42	67	31	0.0	
25	26.43	49	44	26.32	52	46	72	37	0.0	
26	26.29	47	43	26.21	49	43	71	39	0.0	
27	26.18	51	44	26.20	51	45	71	38	0.0	Mid-day wind W.
28	26.08	50	44	26.14	40	37	67	38	0.0	Wind with dust.
29	26.23	37	37	26.24	43	40	59	30	0.0	Wind S.
30	26.28	45	43	26.33	47	44	68	34	0.0	" S.
31	26.32	44	42	26.18	47	43	68	34	0.0	" S.

1875.		9 A.M.			9 P.M.			IN THE DAY.			REMARKS.
Month.		Aneroid Barometer.	Th. Dry Bulb.	Th. Wet Bulb.	Aneroid Barometer.	Th. Dry Bulb.	Th. Wet Bulb.	Max.	Min.	Rain.	
Aug. 1	In.	Deg.	Deg.	In.	Deg.	Deg.	Deg.	Deg.	In.		Wind S.
2	26.21	48	46	26.20	49	45	69	38	0.0		
3	26.26	46	44	26.27	50	47	71	36	0.0		
4	26.30	48	42	26.24	53	47	74	38	0.0		" N.
5	26.19	50	42	26.14	52	46	78	40	0.0		" N., with dust.
6	26.14	52	49	26.10	57	49	80	41	0.0		" N.
7	26.11	51	46	26.07	58	47	79	44	0.0		" N.
8	26.04	54	47	26.02	51	43	75	43	9.0		" W.
9	26.03	47	43	26.04	42	41	60	35	0.04		" W.S.W., st. d. storm.
10	26.08	42	40	26.18	43	39	54	36	0.0		" W., st. to S.W.
11	26.32	41	39	26.37	42	38	63	32	0.0		" S.
12	26.41	44	40	26.37	46	40	67	31	0.0		" N.
13	26.40	46	40	26.30	47	41	69	36	0.0		" N., light.
14	26.29	46	40	26.31	52	46	76	35	0.0		" N.
15	26.33	56	49	26.31	54	46	79	40	0.0		" N.
16	26.33	56	47	26.26	55	46	80	41	0.0		" N.
17	26.22	56	46	26.16	55	46	83	41	0.0		" N.
18	26.22	53	43	26.21	54	46	73	45	0.0		" W. to S.
19	26.20	47	43	26.13	54	46	73	38	0.0		" S.
20	26.12	55	46	26.10	56	47	72	42	0.0		" N.
21	26.12	53	43	26.18	59	49	80	44	0.0		" N.
22	26.18	53	46	26.20	59	49	81	45	0.0		" N.
23	26.24	55	49	26.24	54	47	71	44	0.0		" S.
24	26.30	50	45	26.27	52	45	69	40	0.0		" S.
25	26.29	55	48	26.20	58	50	76	43	0.0		" N.
26	26.24	59	51	26.22	62	53	82	47	0.0		" N.
27	26.29	66	46	26.23	64	53	85	48	0.0		" N.
28	26.20	64	44	26.13	62	51	84	50	0.0		" N.
29	26.09	62	51	26.00	57	49	80	48	0.0		" N.
30	26.00	59	51	25.98	60	52	78	49	0.0		" N. to W.
31	26.10	54	48	26.19	48	45	63	46	0.0		" W.
Sep. 1	26.23	49	47	26.22	51	48	63	42	0.0		" W. to S.
	26.19	55	51	26.08	56	50	73	43	0.0		" N.

UNITED STATES OF AMERICA.

(See also CALIFORNIA.)

(Report by Drs. D. G. BRINTON, Philadelphia, and R. WHARRY, London.)

ANATOMY AND PHYSIOLOGY.

The Physiology of Vomiting.—Dr. A. E. D'Ornellas states as his views:—

1. That sea-sickness depends on a combination of the following causes: *a.* Disturbed innervation, caused by congestion of the medulla oblongata, which may be due to the unusual movement; *b.* Irritation of the optic nerve by iridean disorders; *c.* Stimulation of the periphery of the vagus by the to and fro movement of the fluid contents of the stomach.

2. That organic diseases of the stomach cause vomiting by deposition of foreign matter or by the loss of epithelium, and laying bare the expansion of sensitive nerves.

3. That gravel, biliousness, dyspepsia, etc., cause vomiting by direct stimulation of the mucous membrane.

4. That the poisons of the exanthemata, eliminated in part by the digestive passages, act as emetics.

5. That abdominal affections, the irritations of calculi, inflammations, and congestions of the viscera, produce vomiting by their effects upon the branches of the vagus.

6. That meningitis (cerebral or spinal) causes vomiting by the accompanying congestion.

7. That cerebral tumours cause vomiting by pressing on or causing congestion of the medulla.

8. That surgical operations produce vomiting by setting up violent reflex action while the medulla is in a state of congestion.

9. That hæmorrhages cause vomiting by producing deficiency of stimulus to the nerve centres.—(The Chicago "Journal of Mental and Nervous Disease," Jan., 1874.)

MORBID ANATOMY AND PATHOLOGY.

The Pathology of Tubercle.—Dr. P. G. Robertson, ("Missouri Clinical Record," October, 1874,) states that tubercular phthisis is

specific, and that a liability to certain changes in the lymphatics, when combined with one or more external causes, is a necessary factor in the production of this disease. He says that the deposits in the lungs are consequent upon inoculation from remote parts of the body. The author looks upon tubercle as the result of morbid processes in the lymphatics, capable of secondarily affecting the blood. Under the microscope the tubercular elements are very similar to pus and lymph corpuscles.

The Lungs 'Post-mortem.'—Prof. S. E. Chaille, M.D. ("New Orleans Medical and Surgical Journal,") says that hypostatic congestion and œdema of the lung occupies usually the most dependent one quarter or one-third of the organ, and both lungs are affected to about the same extent when the conditions to which they are subject are similar. Slight serous effusions into the pleural cavities may occur while a patient is moribund, resulting from venous congestion dependent on asystolia of the heart; when one lung is bound down by adhesions and the other is free, the former is œdematous, and effusion is found in the pleural cavity on the other side. Bronchitis may leave no traces, while post-mortem changes may simulate it. Old adhesions of the pleure and emphysema of the margins of the lungs are of trifling import.—("Half-yearly Compendium of Medical Science," July, 1874.)

CLINICAL MEDICINE, MATERIA MEDICA, AND THERAPEUTICS.

Phthisis in Prisons.—Dr. A. L. Leach concludes that prison life is very productive of tubercular disease. In proof of this, he compares the mortality from phthisis within the prisons with that in the adjacent country, and says that even in the most crowded towns the per-centage of deaths from phthisis is far below what it is in prisons: more especially does this tendency to phthisis shew itself in prisoners who have come from healthy parts of the country, where they have been accustomed to pure air.

The chief influences at work amongst prisoners, which produce this undue tendency to phthisis are—Masturbation, uncleanness, mental depression, simple confinement, impure air, and general overcrowding.—("American Jour. of Med. Science," April, 1874)

Phthisis from Traumatic Causes.—Dr. C. F. Brown reports the following case:—A patient, with a good family history, always having enjoyed good health, had his fourth and fifth ribs fractured, a piece of bone being driven into the lung-substance causing circumscribed pleuritis; an abscess occurred which eventually communicated with the external orifice and the ribs became carious. The patient died with phthisis pulmonalis three years after the injury. The right pleura was adherent both to lung and chest wall; there was no effusion of fluid. Both lungs were densely consolidated and shewed various

stages of degeneration, indurated masses, cheesy deposits, and cavities. The right lung was more diseased than the left. On the right side, corresponding with the opening in the bones, there were the unmistakeable remains of circumscribed pleurisy, and a large cavity communicating with and discharging through the osseous opening. The glandular system shewed great enlargement, and this was especially well-marked in the parotids and mesenteric glands. This was presumedly a case in which the broken bone had irritated the lung, causing abscess, congestion, pneumonia, and these changes had proceeded to lobular induration, disintegration, and the formation of cavities.—("The Baltimore Physician and Surgeon," Feb., 1874.)

Significance of Præsystolic Murmur.—Dr. Frank Donaldson, criticises the general views as to the relation between præsystolic murmur and mitral stenosis. He draws attention to the now numerous cases of extreme narrowing of the mitral orifice, in which no præsystolic murmur existed, while the patient was under observation; and he states his conviction that the murmur in question depends upon abnormal friction within the left ventricle, and not to mitral stenosis.—(A paper read before the Medico-Chirurgical Faculty of Maryland, April, 1874.)

The Cause of the First Sound of the Heart; and the Diagnosis of Mitral Regurgitation.—Dr. J. F. Leaming ("New York Med. Rec.," April 3, 1875) says that Dr. Camman has shown that the signs by which we recognise mitral regurgitation (viz., blowing, sawing, rasping murmurs at the apex), are not to be depended upon; but the true sign of regurgitation is a soft friction murmur, such as is heard when fluid is forced through comparatively small openings, heard posteriorly between the seventh and eighth vertebræ, close to the spinal column. The author next discusses the elements in the production of the first sound, considering them of great importance in the diagnosis of murmurs, both functional and organic. Dr. Leaming then recounts the theories that have been held to account for the first sound, and considering that none of them supply all the conditions, especially the acoustic, necessary for its production, directs us to turn to the heart itself for further information. There is a musical arrangement existing within the heart, naturally; a drum-like expansion, and to it are attached tendinous chords, and these are held in position by the intervention of muscular fibres; and, astounding as it may seem, this admirable apparatus for sound-vibration has been overlooked by the most careful observers in seeking for the cause of the first sound of the heart. It is quite reasonable to believe that the first sound is produced by the vibrations of the chordæ tendineæ, and if pathological evidence proves this belief, it will greatly simplify our investigations. When plastic lymph is exuded upon the valvular

surface, and the chordæ tendinæ are at the same time shortened and thickened, or glued down upon the surface of the valve by means of this plastic lymph, so as to prevent vibration, and there is alteration of the first sound or abolition of existing murmurs; there is sufficient proof that the chordæ tendinæ are the parts directly concerned in the production of the first sound. The author refers to various experiments that have been performed, which have proved that when the blood is stopped from entering the cavities of the heart, all the sounds are stopped, being heard again on the admission of the blood; also, that if a small quantity of blood passes into the ventricles, the first sound is heard.—("Lond. Med. Rec.," April 28, 1875.)

Pathology and Treatment of Nasal Catarrh.—Dr. E. C. Mann ("New York Medical Journal") describes the various stages of nasal catarrh, and recommends various plans of treatment.

The capillaries of the nasal mucous membrane become distended, the tissues infiltrated, and a thin colourless aqueous saline exudation is poured out; then the swelling and congestion subside, and the exudation becomes thicker from the presence of young cells. If the disease becomes chronic, there is considerable thickening of the mucous membrane, especially that covering the turbinated bones. The swelling of the mucous membrane depends upon œdematous infiltration of the submucous connective tissue. After one of these acute attacks of catarrh, the mucous membrane may return to its normal condition, but a relapse may occur from any slight cause, and then it becomes more difficult to deal with; each relapse increases the proliferation of cells in the connective tissue, the epithelium and mucous glands gradually enlarge and the mucous membrane becomes hypertrophied. In many cases of chronic catarrh, superficial ulcers may be found, and these in scrofulous and cachectic patients, may penetrate deeply, affecting the perichondrium and periosteum, causing caries or necrosis of the cartilages and bones of the nose; then the secretion becomes fœtid, requiring deodorising agents, which may be used with the post-nasal syringe or nasal douche.

In some cases the mucous membrane is relaxed, while in others it assumes the condition of mucoïd polypous growths.

Rhinoscopic examination enables us accurately to determine the seat and progress of a catarrh, and to apply remedies to the mucous membrane covering the turbinated bones and septum, the parts most prone to ulceration, thickening, hypertrophy, and polypous growths. The polypi originate in localised hypertrophy of the mucous membrane, implicating chiefly the glandular structures.

The treatment of nasal catarrh should be both local and constitutional. Iron, quinine, cod liver oil, with iodine in scrofulous cases, ought to be used to improve the general health. The local treatment

consists in first cleansing the nasal cavities, both anteriorly and posteriorly, by Thudicum's nasal douche, or the post-nasal syringe with a warm saline solution of sixty grains of common salt to the pint of water. Next apply thoroughly a solution of nitrate of silver in glycerine (\mathfrak{zj} to \mathfrak{zj}), to diminish the congestion and thickening of the mucous membrane; follow up this application by passing the vapour of iodine over the surface of the nasal cavities by means of an apparatus made of hard India-rubber, having a cavity filled with sponge which is medicated with the tincture of iodine. Upon one end of this hard rubber apparatus is attached a nasal tube fitting into the nostril, while to the other extremity is attached a soft rubber bulb with a flexible tube. By compressing the bulb atmospheric air or steam, if desired, is forced through the hard rubber apparatus containing the sponge, saturated with iodine, and diffuses the vapour of iodine throughout the entire extent of the nasal cavities, exerting a powerful alterative and curative effect upon the mucous membrane. The application is to be used for a quarter of an hour every other day.

Dr. Mann recommends also a snuff, consisting of finely powdered camphor and pulverised white sugar to be used to any extent, and says that patients speak very decidedly of the relief it affords. Sprays and injections of solutions of sulphate of zinc and copper (\mathfrak{zj} to \mathfrak{zj}) may also be used with advantage.

Where there is ulceration extending down and involving the bone, the following solution of iodine and iodide of potassium in glycerine is beneficial:—Iodine gr. ij., iodide of potassium gr. xij., glycerine \mathfrak{zj} . Polypous growths may be removed by a snare or twisting them off with forceps, and cauterising their site with nitrate of silver.—("Lond. Med. Rec.," April 7th, 1875.)

Treatment of Laryngeal Phthisis.—Dr. R. P. Lincoln ("New York Medical Record," March 2, 1875), says that no evil influence should be allowed to remain in the system. If a patient is ill-nourished, and weakened in consequence of struma, and there is reason to be afraid of laryngeal trouble, a summer at the seaside or a winter in a more equable climate at once suggest themselves; also pure air and exercise, nourishing but unstimulating diet, warm clothing, and avoidance of excess of any kind, whether in overtaking the voice or the powers generally. Sea or salt-water bathing, when judiciously resorted to, ensures free action of the skin. Remedies that will increase the constructive changes should be selected; and tissue waste should be retarded until it is more than counterbalanced by the reparative powers. Intercurrent catarrhs must be carefully attended to. As medicinal remedies, cod-liver oil, iron, sulphur and arsenic when the digestion is good. Iodide of potassium will improve the building-up process, when once that is

established. If there is inflammation of the air passages give some astringent, sedative, or antiseptic inhalation.

If pulmonary phthisis is present, the inhalations spoken of will always have a favourable influence on the cough.

When there are only congestion and erosion, astringent sprays are of great value, such as tannin and glycerine, alum, sulphate of zinc, or iodine; and also some counter-irritant over the larynx, such as iodine, thapsia plaster, croton-oil, or a small blister, especially during an acute exacerbation. In applying blisters one should be allowed to heal before another is applied.

If there is hypertrophy of the mucous or submucous tissue, a solution of nitrate of silver, of suitable strength, applied locally as a fine spray is the best remedy.

If there is much œdema, use scarification or circumscribed application of chloride of zinc or chloride of gold, by a saturated piece of lint on a probe.

If there is acute congestion, with the mucous membrane livid and dry, use an inhalation of steam, or of some balsamic fluid, or spray of tannin and glycerine.

If an abscess forms, incise it early, and thus limit the destruction of tissue, relieve the pain and lessen the risk of suffocation.

If the ulceration extends more deeply than the mucous membrane, and even if it affects the cartilages, use nitrate of silver, or chromic acid with one-fourth its weight of water. Iodoform aids cicatrization and stops pain.

Pharyngitis is of very common occurrence in connection with the laryngeal mischief. In those cases where the pharyngeal mucous membrane becomes congested, or hypertrophied and dry, chlorate of potash lozenges are very efficacious; again, when the parts are relaxed with increased secretion, tannic acid or kino lozenges do good; if, however, it is simply irritable, bismuth, gum-drops, marsh-mallow or slippery elm decoctions are useful.

Where there is febrile disturbance alkalies are indicated.

One serious source of danger in advanced stages of laryngeal phthisis is apnoea from closure or œdema of the glottis, and tracheotomy should be performed, if necessary.

The pain and feeling of constriction are best relieved by hot and stimulating external lotions applied on spongio-piline fitted to the neck; if the pain extends to the ears, anodynes applied to the external auditory meatus give relief. Iodoform is the best local anæsthetic applied to the ulcerated surface, first having removed the discharge.—(“Half-yearly Compendium of Medical Science.”)

Phthisis with unconsciousness for fifteen months.—The “London Medical Record” mentions a case reported by Dr. B. F. Scull in the “American Medical Weekly.” A man with bronchitis and incipient

phthisis of several months' duration, fell into a cataleptic condition; he took whatever nourishment was offered to him, but was totally indifferent as to its nature; he was entirely unconscious of what went on around him; he passed his fæces into a napkin, and he was kept clean without any help from himself. After fifteen months of this condition he suddenly recovered consciousness, but rapidly fell away, and died within a year later.

Strain and Over-action of the Heart.—Dr. Da Costa (in a lecture at the Smithsonian Institute, Washington, August, 1874), stated that acute strain may cause rupture and laceration even in a previously healthy heart, and enumerated cases in which, as the result of violent effort, the valves had been torn from their attachments; the affected valves are generally the mitral or aortic, but sometimes the tricuspid. Violent mental efforts or disturbance may produce effects similar to violent physical exertion. In a little girl, under three years of age, fright caused death in seventy-eight hours. Post-mortem: There was found laceration of right auriculo-ventricular valves, also of some of the columnæ carneæ and chordæ tendineæ. Dr. Da Costa cannot explain these cases by any theory of rapidly developed endocarditis, but he believes that slight fissures in the valvular vela predispose to rupture.

He next considered more persistent action, and demonstrated the relation between "irritable heart" and excessive exertion coincident with diarrhoea or mental tension. Small, rapid, weak pulse, the rapidity of which is much reduced by the recumbent posture; abrupt and extended cardiac impulse, short systolic and clear diastolic sounds—the former being occasionally replaced by an inconstant murmur; quiet respiration and fairly good general health; were combinations that he met with frequently during the civil war. Dr. Da Costa believes that a period of functional disorder precedes dilatation and hypertrophy, with or without valvular disease. The mind, when subjected to long-continued strain and worry, gives rise to conditions of what may be called "heart weariness," which may be the beginning of organic mischief.

The causes of irritable heart are excessive work in deep mines; the occupations of bargemen, porters, blacksmiths, glassblowers, and the like; excessive dancing, rowing, and all violent exercise when too perseveringly followed. The intermissions in these pastimes are the chief protection from cardiac disease. The means of treatment are quietness and frequent rest in recumbent position; digitalis, belladonna and the bromides are useful; aconite, steadily persisted in, gives good results in the early stages of hypertrophy. Ice to the chest is only advisable in very stubborn cases. Removal of the cause is always necessary to obtain success in treatment.—("Lond. Med. Rec.," Dec. 2, 1874.)

Local Treatment of Pulmonary Cavities by Injections through the Chest-Walls.—Dr. Wm. Pepper, after discussing the history and merits of this plan of treatment, draws the following conclusions:—

1. That the idea of opening lung-cavities by an incision through the chest-walls is at least as old as Baglivi (probably much older); but that, owing to the very imperfect character of early clinical records of thoracic diseases, it is difficult to show that such an operation was actually performed before the last century (Barry), or more probably the present one (Hastings and Storks).

2. That the idea of conducting continuous treatment of such cavities by local applications made directly through the chest-walls has been seriously entertained only within the past few years.

3. That the possibility of puncturing the lung in a state of health with delicate needles, without injury, was demonstrated in a few instances by the advocates of acupuncture; and more recently, in the lower animals, by Koch and others.

4. That the operations of Storks and Mosler have shown that lung-cavities are very tolerant of external interference, and that they may be cut down upon and opened, canulæ introduced and retained, and various medicinal agents injected in solution or spray (Mosler).

5. That independent observations (reported in full in this paper) have shown that the continuous treatment of lung-cavities by repeated injections by means of delicate canulæ may be conducted without pain, hæmorrhage, traumatic irritation, or interference with internal medication and hygienic measures.

6. That the cases which are best adapted for this local treatment are those where a single, superficial and circumscribed non-tuberculous cavity exists; but that, even when there is implication of the rest of the lung, or incipient disease of the opposite lung, some benefit may be expected.

7. That the mode in which such local treatment does good, is chiefly by altering the character of morbid action in the walls of the cavity, diminishing the amount of purulent formation, as well as the degree of hectic irritation and the danger of constitutional infection; that a certain amount of rest for the walls of the cavity is secured by the marked relief afforded to the cough; also that it is indicated by the progress of the cases that this treatment may favour the cicatrization and contraction of such cavities.

8. That in the cases in which it has been employed (in which over seventy injections have been given), it has shown itself free from all danger, and of a certain degree of positive clinical value, since, during its use, uniform improvement to an exceptional degree has taken place in both the general and local conditions of the patient.—(*"Amer. Jour. of Med. Science,"* October, 1874.)

Case of Pneumo-hydro-pericarditis; with Remarks.—J. Forsyth Meigs,

M.D., relates the following case of this rare disease, which occurred in his private practice in February and March, 1874:—

The patient was a young man, eighteen years of age; one of five children, all living and in good health, parents both living and in good health. The father had, between thirty and forty years ago, three violent attacks of acute rheumatic fever, but good health since. One of his sons had acute rheumatism. Three distant relations suffered from cancer.

One year ago the patient had a troublesome cough, attended with hectic fever, severe night-sweats, and loss of strength and flesh, due to a chronic catarrhal pneumonia of the anterior portion of the upper lobe of the left lung, marked by fine and coarse râles, harsh respiration, and moderate dulness on percussion. At the time much anxiety was felt as to the possible termination of the case in tubercular disease, but the symptoms gradually subsided, and from March in that year he seemed to be in his usual health.

On the 4th of February, 1874 (while in apparent good health), after having got his feet wet, he was exposed to cold in an office in which the fire had died out. Cough set in, with loss of strength and flesh, early in the case, and with feverishness at night, but he was not confined to bed. February 10th, he looked badly; had a thick, pallid complexion, seemed weak and sick. The pulse was frequent; skin hot; breathing short and oppressed, especially upon exertion. He had obscure pain in the chest, especially in the right side. There was a frequent loose-sounding and troublesome cough, but no expectoration. Appetite poor, with a tendency to constipation.

Examination of the chest discovered pleurisy at the base of the right lung, with moderate effusion. Elsewhere percussion sounds normal. Extensive coarse sonorous râles all over the thorax.

He was advised to keep quiet within doors; diet—milk, bread, eggs, light meats, and food of that kind. He was ordered a febrifuge of citrate of potash, with opium and digitalis every four or six hours; quinia, eight grains, in two doses in the morning; mild laxative. No material change until the 15th, when he went out for a walk, but soon returned. Went to bed, but unwillingly; treatment continued. February 21st.—No improvement. Physical signs much the same; coarse, rough, mostly dry râles all over chest; cough troublesome from its frequency, scarcely any expectoration; once or twice a-day a little yellowish-white phlegm; losing flesh and strength.

There was something even now in the case which the pleurisy seemed scarcely to explain, and it became a question whether he was not becoming tubercular, or whether he had typhoid fever in which the local inflammation was intercurrent. The presence of tympanitic abdomen, an irregular eruption upon it, appeared in some degree to favour the latter opinion. But the constipation, moist tongue, clear,

quick mind, unsteady fever, forced Dr. Meigs to reject this theory, except as a possibility, and led rather to the fear that lung disease of a most dangerous kind was the key to the symptoms. Treatment and diet continued, with entire rest in bed, and wine-glassful doses of wine-whey given several times daily. Feb. 24th.—At 1, p.m., pulse, 110, temperature $102\frac{1}{2}^{\circ}$. 25th.—8, a.m., pulse 110, temperature 102° . Had one free stool in the morning, urine free; non-albuminous, cough spasmodic, troublesome, loose in sound, with scarcely any expectoration. At 4.30, p.m., pulse 110, temperature $102\frac{1}{2}^{\circ}$. Some dulness on percussion at base of *left* lung behind, with deficient expansion—at same point breath-sounds feeble; making it plain that the disease had extended to the left side. It was evident now that the disease was not typhoid fever, but one of those cases of inflammation of the serous membranes of both sides of the thorax, which are so rare as idiopathic conditions. There was no sign of renal disease, and in the absence of such cause it was thought most probable that the double pleurisy was related to a tuberculous constitution, or to the presence of cheesy degenerations in the lung following the chronic pneumonia which had existed in January, 1873.

(From the 25th of February to March 5th the case varied, gradually growing worse in every respect. Treatment varied to meet the indications as they seemed to arise. The loss of strength and flesh was very apparent). March 5th.—1, a.m., pulse 130; respiration 32; sweating freely; drinking water abundantly; urine free and light coloured. 7 a.m., pulse 128, respiration 40, temperature 102° .

At the morning visit one of the family called attention to a very peculiar sound in the patient's chest, which was audible to a person sitting by the bedside (three or four feet off). It was noticed first late in the night, had a splashing character, and was suggestive of the sounds produced in an old-fashioned upright churn, which being worked by the arms, has a certain regular rhythm. "Listening over the heart, both the sounds and the friction-murmur were accompanied by the most extraordinary metallic reverberation I had ever heard, and were followed by the loud splashing or churning sounds which had been heard at the bedside. The echo-like reverberation was so like the amphoric note heard in pneumothorax, and the churning sound so like the succussions of the same disease, that the presence of air and liquid in the pericardium was at once suggested to my mind. The metallic tone of the sounds resembled the note sometimes heard when the stomach is distended to an unusual degree, and yet was so clearly amphoric that I could not resist the impression that there must be air in the pericardium. The percussion sound over the cardiac region, and for some distance below it, was tympanitic, so as to suggest the possibility of pneumothorax, but its limitation to the middle portion of the chest, and the presence of the respiratory murmur below, rendered this explanation very improbable.

"Percussion over the epigastric and left hypochondriac regions showed that the stomach did not contain more air than usual, and, moreover, this would not account for the loud splashing or churning sounds. Neither could these symptoms be accounted for by the presence of a large suppurating cavity in the lung. (These symptoms, with very little material variation, continued till his death, which occurred March 8th, at 3, a.m.)

"9th.—*Post-mortem*.—Assisted by Professor Ellerslie Wallace and Dr. Jordan. Body a good deal emaciated. On removing the sternum the pericardium was seen to be very much distended, both longitudinally and transversely—so much so, that its anterior surface bulged up between the ends of the costal cartilages as soon as the sternum had been lifted away. To the touch it was very elastic, more so than I had ever felt it before. Assuming the case to be one of pneumo-pericardium, it was determined to open the sac in such a way as to leave no doubt of the presence of air, if air were really present. With this view I had brought with me a small aspirator syringe, supplied with a piece of gum-elastic tubing several inches long, arranged for connecting at one end to the syringe, and at the other to a fine exploratory needle. Fitting the tube to the needle, and arranging the free end of the tube under the surface of water in a basin held by Dr. Wallace, I plunged the needle carefully and very obliquely into the pericardial sac. Instantly air began to escape freely in large bubbles through the water. Of course, the first small portion of air escaping was that which had been already in the tubing. But it was evident from the large size of the bubbles, and the rapidity with which they formed, that air or gas was coming from the pericardium. Moreover, the smallest pressure, applied and removed by turns upon the sac, evidently increased and diminished the quantity escaping. In addition to this, the walls of the cavity collapsed as the gas escaped, and fell below the level of the external opening. The gas that thus escaped was not inflammable, and had no distinct odour. The sac was now opened, and found to be greatly enlarged,—would probably hold a quart of water. In the inferior, posterior portion, below the heart, was lying half or three-fourths of a pint of thick, very dark reddish-brown liquid, consisting apparently of serum and altered blood; also a few small soft coagula, showing that there had been true hemorrhagic effusion into the cavity. The investing membrane of both heart and pericardium was greatly thickened, rough, villous, of a dark reddish-brown, verging on purple tint, and at the same time softened and deeply stained with effused blood."

"By the most careful tests, it was proven that the air did not obtain access to the pericardium from the lungs, trachea, or bronchi. The œsophagus was carefully slit up. There was thus discovered a small

and superficial depression in the anterior wall of the tube just below, (perhaps a quarter of an inch) the bifurcation of the trachea. The depression was half an inch in diameter, and in its centre was a small aperture, with ragged, dark, ulcerated edges, large enough to receive the point of the catheter. This perforation led through some connecting tissue directly into the uppermost extremity of the pericardium. No opening of any kind was found from the trachea and bronchi into the sac. There was evidence of the existence of severe pleurisy during life. Lung-tissue healthy, except a few points of congestion, and others of cheesy deposit.

"The muscular tissue of the heart was soft in all directions, and exhibited the appearances of myo-carditis. The endocardium was stained dark, but showed no inflammatory condition; valves healthy.

"Abdominal organs all healthy, except the liver, which was somewhat enlarged, and more fatty than natural.

"*Remarks.*—Pneumo-pericardium, pneumo-hydro-pericardium, pneumo-py-o-pericardium, or pneumo-hydro-pericarditis, as it is called technically, is a very rare form of disease. Few medical men meet with it. Many text-books treat of it in a formal manner, and but few of the medical journals report cases. Rokitsansky never met with it, and thought "most of the cases recorded, like the pneumatoses of other serous sacs, leave room for many doubts regarding their existence during life."

"One case reported by Mr. Cæsar Hawkins will be found in the 'Lancet,' vol. ii., 1860. Trousseau gives two cases.* Canstatt recognises its existence, but gives no cases, and doubts the spontaneous formation of air in the sac, and states that it enters the pericardium through a penetrating wound from the lung or intestine.

"Stokes relates a case† which occurred to himself, as do several distinguished authors, as Graves, Brichteau, Walshe, Niemeyer, and Chambers; while Skoda, Flint, Fothergill and others seem not to have seen a case of the disease.

"The auscultatory signs were so peculiar and distinct that, after the first day, I could frame but one theory by which to explain them, that air and fluid were commingled in the pericardium. Being familiar with the auscultatory signs of pneumothorax, and finding that the movements of the heart in its cavity were producing the same characters of sounds as those determined by the movements of the lung in pneumothorax, I could not but conclude that the physical conditions must be alike. The amphoric note accompanying the cardiac sounds, the metallic tinkling, and the splash, the latter audible at some distance from the patient, were as distinct as ever I heard in pneumothorax, though, except the splash, not so loud.

* Sydenham Society Edition, Vol. III., pp. 360-390.

† Diseases of Heart and Aorta.

"The question whether gas is evolved by spontaneous decomposition, or by an act of secretion in a closed serous sac, is a curious one. The fact that Rokitsansky, after his enormous experience in pathological anatomy, "never met with an accumulation of air in the pericardium" is a demonstration that decomposition of the materials inclosed in the pericardium, in pericarditis, pyo-pericarditis, or hæmo-pericardium, of such kind as to generate gas, must be infinitely rare; for where else have there been such opportunities of observing this change, if it occurs, as in the experience of the great Vienna pathologist?"—("Amer. Jour. of Med. Science," Jan., 1875.)

Calcification of the Aortic Valves of the Heart.—Reported to the Detroit Academy of Medicine, by J. F. Noyes, M.D., Detroit.

Dr. Noyes says—"The very remarkable as well as interesting pathological specimen which, April 9th, I presented to the Academy, was obtained four days prior, fifty-two hours after death, at an autopsy, to which I was invited by Dr. Oakley. The ante-mortem history is also scarcely less remarkable, especially when viewed in connection with the gravity of the heart trouble. It may be briefly stated as follows:—

"Mr. L. C., aged 54, inherited a good constitution, was of temperate and industrious habits, and led a very active life; few men moved or are moved about as much as he was, having, for the greater part of his life, filled the position of conductor of the mail train on the M. C. Railroad, passing daily over the entire length of the road, a distance of 280 miles, the duties of which are very responsible, as well as arduous and tiresome. He retained the office for the period of twenty-seven consecutive years, and during this lengthy period was rarely, if ever, off duty, save when laid up for a few months with a fractured leg, three years ago last November. Thursday previous to his decease, feeling somewhat unwell, he stayed at home and did some light work about the house; but in moving about experienced greater than usual shortness of breath. Friday night, ascending the stairs to his sleeping room, though doing so very slowly, he complained of very great oppression and want of breath. Getting immediately into bed and feeling chilly, he raised himself up, and, reaching down to pull a blanket over him from the foot of the bed, he fell back, with upturned eyes, insensible upon the pillow, and for a time was nearly or quite pulseless. The free administration of stimulants by the physicians soon in attendance, partially restored the circulation, and by their aid he maintained his consciousness till shortly before one o'clock on Saturday following, when he expired. During his active life, the deceased appears to have complained of nothing so much as of his stomach, and was in the habit of applying to one physician and another for prescriptions for an imaginary dyspepsia. Indeed he seems himself, from

all I can learn, not to have been aware that he had a serious organic disease of the heart, though he suffered from many of the subjective symptoms, such as palpitation of the heart and shortness of breath, particularly when moving quickly about, or upon any sudden or great excitement, especially for the last few years, or since he was laid up with the fracture, as above stated. At times also he had severe seizures of a sense or feeling of oppression or constriction across the chest, and paroxysms of severe pain extending down the left arm. When his hands got in the least chilled, the suffering in them was almost insupportable.

"It is due to Dr. J. A. Brown, then his physician, to state that he has informed me that he detected an organic disease of the heart more than ten years ago.

"The subjoined explanatory remarks are by Dr. H. P. von Petershausen, of this city:—

"The case reported by Dr. Noyes is a forcible illustration of the recognised fact that an aortic obstruction is the least fatal form of valvular disease. The obstruction was compensated for by a considerable hypertrophy of the left ventricular walls, amounting to one inch and a half.

"But this case is not an usual one, as the obstruction bears a peculiar character. At first it must be remarked, that the valve is much larger than common, having a diameter from fifteen to sixteen lines. There is no trace left of the original three flaps of the valve; the valve appears as a diaphragm with a simple slit in it. The formation of this was effected not only by a complete fusion of the right and posterior valvular flaps, but also by a partial fusion of the remaining flaps. The outlet of the slit, that is, as it appears from the aorta, has a length of nine lines. On both of its sides rough prominences of considerable size cover the valve. They appear partly like nodules, partly like cauliflower excrescences. The thickening amounts to about five lines near the orifice, and must, therefore, have interfered considerably with the function of the valve, the more so as an infiltration of lime caused a high degree of rigidity. The lower surface of the valve has a somewhat different appearance. The inlet of the slit is larger than its outlet, and measures fifteen lines. The prominences are more like nodules, and cover less of the valvular surface."

Free Incisions with Drainage Tube versus Paracentesis in the Treatment of Pyothorax.—Dr. G. Wackerhagen relates a case, preceding it with a brief discussion as to the relative merits of the different methods of evacuating the fluid. After determining the existence of pyothorax by the trochar or aspirator, Dr. Wackerhagen says:—"it would appear more consistent with general therapeutics to give free exit to matter which, when permitted to remain in any cavity of the body, will prove detrimental to the general economy by causing

septicæmia, and also by its mechanical hindrance to the normal functions of important viscera. I am convinced from personal experience in treating purulent collections, that there is no danger in introducing air, provided the cavities are cleansed daily with antiseptic injections." The recently popular method of using the aspirator in these cases shows a mortality of about 50 per cent., while the percentage where free incisions and drainage are used is much less. Especially is this so in adults. In the cases of children the percentage is reduced; but in adults, in the cases collected the mortality was diminished by free incision and drainage to about 25 per cent. Professor Hamilton and Mr. John Wood, F.R.S., also strongly approve of free incision with thorough washing and drainage; while Professor Gross speaks of this method as being "both harsh and dangerous."

Dr. Wackerhagen also relates a case of pyothorax, in which the disease, in spite of the usual approved treatment, continued to grow worse, with the exception of periods of apparent improvement. The aspirator was finally used. At this time the pulse was 140, temperature 104. Forty-six ounces were removed, giving great relief and improvement. This operation was repeated several times at varied intervals, drawing off respectively 51, 13, and 12 fl. ounces of very putrid pus; after the last aspiration the patient was not at all benefited, but continued to grow worse, when finally a free incision and the drainage-tube were resorted to. A large quantity of offensive matter was discharged, and then the cavity thoroughly washed with a solution of carbolic acid. The tube was retained *in situ* by means of silk threads fastened to the back by means of adhesive plaster. From the time this plan was adopted the patient continued to improve rapidly; the appetite increased, the hectic disappeared, and in less than two months he was able to go to the country. The carbolic acid solution was continued every second day throughout, the discharge gradually decreasing, though it had not yet entirely ceased, but was very slight. There was no contraction of the thoracic parietes, and the lung seemed to have fully expanded. — ("New York Med. Jour.," Jan., 1875.)

The Treatment of Consumption.—According to a writer in "The New York Medical Record," June 1st, 1874, the primary object in the treatment of consumption is to secure conditions most favourable to nutrition.

(a.) *Climate.*—The proper climate for a patient to live in should be one in which the air may be breathed during the greater part of twenty-four hours; the atmosphere must not be loaded with dust, and there must be plenty of sunlight. The patient must take sufficient exercise, but without fatigue. As a rule, low and damp places are injurious. If the patient gets chilled by being in the open air it is better that he should remain in the house and make a suitable atmosphere there for himself artificially, taking some regular light

gymnastic exercise. Never send a patient where he will be surrounded by depressing influences. A patient in an advanced stage of phthisis should never be sent away from his home unless he can take his home with him. In general, the sea-shore does harm to patients, so let them avoid it, unless individual experience teaches that it agrees with them. Some men advocate long sea voyages in the early stages. Avoid habitually sending patients to the same place; if possible, send patients to localities in which they can enjoy their favourite recreations. The great object to be held in view is to raise the patient's health above that level at which phthisis progresses. The power of drugs to accomplish this is very questionable; alcohol is only to be used as a means of assisting digestion; and the form most agreeable to the stomach should be selected. Air free from moisture and dust, good food, gentle exercise, are most to be relied upon in the general treatment of this disease.

(b.) *Cough*.—In rare cases phthisis occurs without cough, but these are almost invariably complicated cases. Phthisis may run its entire course in the insane without cough. Most of the formulæ to relieve cough contain opium, and the effect of opium is only to blunt the sensibility and allow matter to accumulate that ought to be expectorated; opium also is nearly certain to injure the patient's digestion. If it is necessary to relieve the cough, morphia is the best agent to use. The choice of remedies should fall on those that have most power in relieving the cough without disturbing the function of the stomach.

(c.) *Distress after Eating, and Diarrhœa*.—are symptoms of common occurrence, and there are two conditions upon which they may depend, namely, hyperæmia of the gastro-intestinal mucous membrane, the result of the irritation of indigestible food, or the diarrhœa may result from ulceration of the intestines. When occurring in the early stages of the disease, these symptoms are probably due to hyperæsthesia and hyperæmia of the mucous membrane, the diarrhœa being nature's effort to relieve the engorged membrane. Thus it will be seen that arresting the discharges is not a good plan of treatment, until they have relieved the congestion. After several watery discharges have occurred, without pain, opium and astringents may be used. A good prescription is sulphate of magnesia, camphorated tincture of opium, aa ʒj. Water oj. A wineglassful to be taken every two or three hours till two or three free watery stools are produced. The diet must be regulated, and consist of milk, farinaceous food, yolks of fresh eggs beaten up with wine and sugar. When the bowels are irritable, beef tea is liable to purge them. If the farinaceous diet does not agree, raw beef scraped fine, or warmed, then scraped fine, and seasoned with pepper and salt, may be tried. Lacto-phosphate of lime is an ex-

ceedingly useful remedy in these cases; it must be freshly prepared, and kept cool, or else it will prove a purgative.

Pepsin, combined with muriatic acid, will assist digestion in these cases. Fatty meat, thoroughly boiled pork, fresh butter, and perhaps cod liver oil, may be taken with advantage.

Phthisical diarrhœa may depend upon simple thickening of the mucous membrane of the small intestines; when it depends upon ulceration the regulation of the diet is exceedingly troublesome, and those articles of diet should be selected which depend but little upon the latter stages of digestion for their assimilation. If the ulceration is situated in the small intestines, cod liver oil and the hypo-phosphites are most serviceable. If the large intestine is affected, hardly more than temporary relief can be hoped for. Blood in the defecations evidences ulceration, while the seat of pain, tenesmus, etc., tells us usually whether the large or small intestine is affected. Treatment is of most avail when the small intestines are ulcerated, but the treatment that remedies the diarrhœa which depends on hyperæmia is not indicated now; the subcarbonate of bismuth in doses up to one drachm three times a day is a most useful drug in these cases. *R Bismuthi subnitratissj. Morphie sulphatis gr. ij. M. divide into twelve powders, one to be taken every four, six or eight hours.*

Mineral waters are sometimes beneficial, the Rock Ridge lime spring of Virginia is the best; this water is astringent and tonic, containing lime and iron. Dose, two to four ounces every three or four hours.

In the later stages of the diarrhœa, opium must chiefly be relied upon, especially when the lesion is in the large intestines. When it is given to relieve pain, it should be given by means of hypodermic injection or suppositories, for then it does not disturb the digestion in the stomach so much.

Suppositories of gum and opium alone are more efficacious than those more complex. Salicine in 10 grain doses, thrice daily, has some reputation in staying this diarrhœa.

(d.) *Vomiting after meals*—is of common occurrence; a wine glass of champagne taken during meals sometimes stops it; dilute hydrocyanic acid is an efficient remedy when given to produce sedative effects, as the vomiting is generally due to irritability.

(e.) *Hæmoptysis*—a symptom which alarms the patient, is not often the immediate cause of a fatal termination; on the contrary, patients in whom this hæmorrhage occurs are more likely to have their phthisis arrested. Those cases that do recover almost always have this hæmorrhage before their recovery. It is in the early stages that hæmoptysis is beneficial; in the later stages it may have an opposite effect. If a patient has slight hæmorrhage, put him in bed and keep him quiet, and if he bears opium well give him a moderate dose,

which will diminish the moral effect of the hæmorrhage, and also diminish irritability; then a small teaspoonful of salt, followed by a little water, may do good. Where the hæmorrhage is only slight and occasional do not give inhalations of nitrate of silver or persulphate of iron.

Hypodermic injections of ergotine may be given in doses of about one grain as a hæmostatic, or the liquid extract may be administered by the mouth in doses of \mathfrak{m} xx. to $\mathfrak{z}\mathfrak{j}$.

Quinia may be given in 5 grain doses every hour, until the pulse and temperature are brought down. Turpentine is a most powerful hæmostatic agent in all internal hæmorrhages; it may be given in $\mathfrak{m}\mathfrak{x}$ doses every two hours, or it may be easily and beneficially administered by inhalation, and is then especially useful in those cases where small hæmorrhages last for some days. Strangury as a result is of rare occurrence.

If the hæmorrhage is profuse the withdrawal of blood from the general circulation is indicated. This may be done by dry cups applied to the chest anteriorly, posteriorly, and to the thighs. Another and more effectual plan is to apply a ligature to one of the extremities, and thus arrest the venous circulation, allowing the blood still to pass through the arteries; the ligature must not be applied to one limb for more than six or eight minutes, and then must be gradually loosened so that the blood is only slowly re-admitted to the general circulation. A second ligature may be applied to another limb two or three minutes before the one previously applied is loosened. By these means hæmorrhages may be quickly and repeatedly controlled; in a certain percentage of cases hæmorrhage precedes the cough in its onset.

Hectic Fever and Night Sweats.—Hectic sometimes alternates with diarrhœa. To reduce the fever, give quinine in doses sufficient to reduce the temperature and control the pulse. The quantity given should average gr. xx. a-day, and should just stop short of producing ringing in the ears. In considering the treatment of the night sweats we must first decide that their arrest will be advantageous, for, owing to the sympathetic connection between the skin and the mucous membrane, it may do harm. However, when excessive they must be controlled. Sponging the patient with hot water at bed time may be tried. Change the flannel clothing when the patient is sweating at night. Arouse the patient before the sweat comes on, administer some nourishment, and bathe his hands and face. A large dose of quinine at bed-time is of questionable use. Aromatic sulphuric acid, or a combination of oxide of zinc and hyocyanus may do good. Liquid extract of ergot if retained by the stomach, ergotine given hypodermically, atropine gr. $\frac{1}{100}$ to gr. $\frac{1}{80}$ at bed-time, are all said to be of use. Hydrate of chloral gr. xx. may be given two hours before sweating comes on.

Loss of Flesh and Strength.—Give cod liver oil, and make it as palatable as possible. Combine the oil with an alkali. Lime water is a very good vehicle. Oil with the phosphates is a good combination, and may be improved by a little diluted hydrocyanic acid. When the oil rises on the stomach, if the patient will educate himself to catch his breath, open his mouth, permit the bubble to burst as it reaches the fauces, then blow his breath out, he will avoid all the disagreeable taste attending the eructations. Inunction of cod liver oil supports nutrition to a certain extent. Pancreatic emulsion is often useful when cod liver oil cannot be tolerated.

Oxygen is worthy of a trial, though of doubtful value; still it may give some relief.

Swelled Feet.—A smoothly applied flannel bandage is often of much service in supporting the weakened vessels.

Fistula in Ano.—A not uncommon complication; when everything is most favourable, an operation may be advisable, but the fistulæ are liable to remain unhealed after it.—("Lond. Med. Rec." June 24, 1874.)

Cod Liver Oil Emulsion.—Mr. W. M. Rice has suggested an elegant and pleasant emulsion, containing 50 per cent. of cod liver oil, combined with the following ingredients:—Tragacanth.; Sacchar. alb.; Ol. Gaultheriæ; Ol. sassafras.; Ol. amygd. amar.; aquæ. Dissolve the tragacanth and sugar in water, and strain the mucilage, to this first add the essential oils and then the cod liver oil. If advisable lacto-phosphate of lime, etc., can be added by slightly modifying the formula.—("Amer. Jour. of Pharm.," Nov., 1873.)

Pancreatic Emulsions of Solid Fats.—Mr. R. V. Matteson, adopting many of the suggestions of Dr. Dobell, says that solid fat is more stable in its nutritive effects than cod liver oil, because it is rich in stearin, and that food, rich in this substance, largely enters into ordinary diet. Cod liver oil is assimilated more rapidly than other fats, and in those cases in which its use can be continued, rapid improvement usually takes place, but olein cannot replace stearin in the system, so the work is at last inefficiently done. The olein is largely absorbed by the veins, and often chokes up the portal system, causing the patients to tire of the oil, counteracting the good it would otherwise effect. Solid fat is chiefly absorbed by the lacteals, and thus when pancreatised the necessary amount of fat may be administered in a natural manner for proper nutrition. The combined use of cod liver oil and emulsions of solid fats, when practicable, is most beneficial.—("Amer. Jour. of Pharm.," March, 1874.)

The Action of Nitrite of Amyl.—Dr. Robert Pick says, in the "Cincinnati Medical News," Sept., 1874:—

1. Nitrite of amyl relaxes the whole of the muscular system, acting more especially upon the non-striated muscular fibre.

2. This action is very marked in the muscular coat of blood-vessels, a few drops speedily and with certainty causing dilatation, which is more marked in the upper part of the body. Simultaneously the tension in the vessels is diminished, and the action of the heart is accelerated.

3. The effect probably depends upon the direct action of the ether on the non-striated muscular fibres of the vessels.

4. Nitrite of amyl is a valuable remedy in cases of spasm of the blood-vessels or excessive intra-vascular tension, and, possibly, in cases of spasm of other muscular structures; it is therefore recommended in hemicrania, angina pectoris, epilepsy, eclampsia, spasmodic asthma, trismus, and tetanus. It often is merely palliative in its action.

The spasmodic affections of childhood offer a promising field for this remedy. Inhalation is the best way to administer it, the effects of subcutaneous injection, or when taken by the mouth, are not so satisfactory. When given internally, the dose is two to five drops, given on sugar, but it may be increased to fifteen drops even.—(*"Half-yearly Compendium Med. Science,"* Jan., 1875.)

Carbonic Acid Poisoning in Sick Rooms.—Dr. W. H. Thayer writes in the *"Sanitarian,"* for December, 1874.

"I start with the proposition that the most serious impediment to recovery in fatal cases of acute disease is the daily and hourly administration of fatal doses of carbonic acid gas; and the same treatment is the chief cause of the gravity of many cases which, without this poison, would be of mild form. It will be a matter of difficulty to convince the majority of medical men of this fact.

"The truth of the proposition was strikingly illustrated in two cases of double pneumonia, which would have terminated fatally had the patients been subjected to the depressing influence of the carbonic acid usually found in sick chambers."

Ozone in Health and Disease.—Dr. J. F. Baldwin concludes that ozone influences the general health only in so far as it purifies the air by destroying, not the living germs of disease, but the products of decomposition.—(*"American Jour. Med. Science,"* Oct., 1874.)

On the Use of Chloral in Phthisis.—Dr. Francis Le Haynes, of Philadelphia (*"American Jour. Med. Science,"* Oct., 1874), has drawn the following conclusions in reference to the use of chloral in phthisis:—

1. "In giving chloral to allay cough, I have perceived no beneficial results, and now never use it as an ingredient of 'cough mixtures.'

2. "But it is in removing the sleeplessness of the last stages of phthisis that we find the true province of chloral. In the early stages of a disease which is commonly of such long duration, I have not considered it advisable to teach patients to rely upon any hypnotic, and

hence have not prescribed chloral. The danger of producing chloralism is an additional reason against its persistent use.

"I have frequently given chloral with the hope of removing some of the slighter ailments so common in phthisis, such as the dull frontal or occipital headache, but never with success; when sleep passed away the pain remained."

Treatment of Pertussis by Inhalation.—Dr. J. Winthrop Spooner, of Hingham, ("Boston Medical and Surgical Journal," Nov. 5th, 1874,) gives brief histories of eleven cases of this disease treated by inhalation of the following:—R Fl. Ext. Belladonæ m̄ v. to x.; Potass. Bromid. ℥i.; Ammon. Bromid. ℥ii.; Aque, ℥ii. M. All the cases were more or less relieved, and in nine of them the amelioration was prompt and effectual; in all the most urgent symptoms were greatly abated.

The Action of Gelseminum.—Dr. W. C. Hull, of Monroetown, in the "Philadelphia Medical Reporter," says:—

The most obvious effects of gelseminum sempervirens on the human organism are vertigo, slight delirium, dilatation of the pupils, amblyopia, diplopia, congestion, general prostration, muscular relaxation and diaphoresis. The congestion, amblyopia, diplopia and dilatation of the pupils are indicative of diminished nerve-force, which results in partial paralysis. The author believes that the congestion, which is the result of vaso-motor enervation, occurs first in order of onset, and that the other three symptoms develop afterwards as a result of obstruction of the capillary circulation. Evidence does not prove that gelseminum acts directly on the cerebral ganglia.

Capillary circulation is materially influenced by the state of tonicity of the capillary walls, and this tonicity depends on the vaso-motor fibres of the sympathetic nerve; hence whatever impairs the function of the vaso-motor nerves impedes the capillary circulation.

Gelseminum acts directly on the sympathetic, diminishing the force transmitted along the vaso-motor nerves, and so lessening the tonicity of the capillary walls: congestion is the result.

The secondary effects of gelseminum may be attributed to retarded circulation. The feeble and slower heart, the prostration, the muscular relaxation with debility may all be explained in this manner. Some have asserted that it is an arterial sedative, but this is an error. Veratrum viride is an example of an arterial sedative, and acts primarily on the heart, diminishing its force and frequency. Gelseminum acts upon the peripheral portion of the vascular circle, while veratrum viride acts upon the central portion. The range of application of these two drugs in the treatment of disease differs widely. Veratrum is useful in congestive and inflammatory disorders, by lessening the quantity and force of the blood sent to the congested parts, whereas, in such a case, gelseminum would, by increasing the con-

gestion, indirectly restrain the heart. The action of gelseminum on the sympathetic, affords no indication of its specific effect in certain fevers. This specific action was accidentally discovered, and has since been tested more fully in the treatment of these fevers.

The author lays down as the result of a very extensive trial of this drug:—

1. It is not adapted to the treatment of inflammatory or congestive diseases.
2. It inflicts injury in active congestion.
3. Its therapeutic scope does not extend much beyond certain simple forms of fever.
4. To obtain its specific action in fever, it must be rapidly introduced into the system, until its effects on the visual organs are developed.
5. It can be given in full doses with entire safety in those cases to which it is adapted. In the hands of Dr. Hull it has proved of considerable value in bilious, catarrhal, and gastric fevers of childhood, acting almost like a specific. In typho-malarial fever, when the malarial features predominate, it often cuts the malady short.

It may be given as a fluid extract in five minim doses every two hours, watching the effects. Usually within twenty-four hours the characteristic effects develop, followed by copious sweating, which breaks the fever, if it is simple and free from complications. When broken, the fever does not return.—("London Med. Rec.," May 13, 1874.)

Nitrite of Amyl in the Treatment of Asthma and Acute Bronchitis.—Dr. D. H. Kitchen ("American Journal of Insanity," Oct., 1873) says that he has used the nitrite of amyl very successfully in the paroxysmal cough and dyspnoea of acute bronchitis, and in the dyspnoea of spasmodic asthma. He orders for his patients the inhalation of from six to fifteen drops (a dangerous dose) at a dose, poured into a small cup-sponge, which is at once applied to the nose, the mouth being kept closed. Its good effect, he considers, is due partly to the sedative action it has, through the motor nerves, on the muscular system; and also partly due to its diminishing the blood-pressure and causing contraction of the capillaries. The author records four cases successfully treated in this way after the failure of other means.—("London Med. Rec.," April 29, 1874.)

Nitrite of Amyl in the Treatment of Chronic Gastralgia.—Dr. W. H. Forrest says ("New York Medical Journal," Feb., 1875) that in the treatment of a very acute case he failed with $\mathfrak{z}\mathfrak{i}\mathfrak{j}$. doses of Magendie's solution of morphia, and with many other remedies. He then ordered nitrite of amyl inhalation, and obtained only a slightly relaxing effect, without relieving the pain. Then he gave $\mathfrak{m}\mathfrak{i}\mathfrak{j}$. and $\mathfrak{m}\mathfrak{i}\mathfrak{j}\mathfrak{s}\mathfrak{s}$. doses by the mouth, and the pain ceased in eight minutes, the patient saying he felt peculiarly strong. The pain returned again after 24 hours, and a dose of $\mathfrak{m}\mathfrak{i}\mathfrak{j}\mathfrak{s}\mathfrak{s}$. was effectual in stopping it. It did not return at all in any serious degree. Chloral

and bromide of potassium were given to relieve the insomnia from the the opium habit.—("London Med. Rec.," March 10, 1875.)

Alcohol.—Dr. J. C. Morris, in an article on alcohol in disease ("Philadelphia Medical Times," April 10, 1875), says,

Three things should be borne in mind in the administration of alcohol, except in cases of shock or hæmorrhage:—

1. It should be given in small, definite quantities, at intervals of three or four hours, so as to produce repeatedly the primary effects and avoid the second or third stage of its action.

2. It should always, if possible, be accompanied with food, which may thus aid in the permanent invigoration of the patient.

3. It should be withdrawn gradually, but steadily, as the patient regains strength; no patient should be left to the continued use of it after recovery. While the disease or debility continues, large quantities will often be necessary, but as the powers of the system are restored the desire for it will lessen and disappear, unless an unnatural appetite or craving for it is awakened.—("London Med. Rec.," May 26, 1875.)

The Action of Lobelina on the Circulation.—Dr. Ott has experimented with the alkaloid of lobelia inflata. It is a dark oily liquid, heavier than water, and has a smell and taste like tobacco. A solution was made of it, in water acidulated with acetic acid, and afterwards neutralised. Six experiments were performed on rabbits, which were under the influence of curare; and the experimenter inferred that lobelina, in small doses, raises the blood-pressure by exciting the peripheral vaso-motor system; the pulse is first reduced in frequency, and afterwards quickened.—("London Med. Rec.," May 19, 1875.)

The Complementary Parts of Disease.—Dr. A. McBride ("The Cincinnati Lancet and Observer," April, 1875), says we may often anticipate serious disease by observing apparently trivial symptoms. Those signs which are the precursors of something to come, are what Dr. McBride calls "the complementary parts of disease." Arrest of the lochia is usually a forerunner of grave inflammatory mischief. Heat-rash (lichen tropicus) and cholera infantum stand in a similar relation in children. A woman suffers from paroxysmal palpitation, and dyspnœa, dizziness, malaise, belching, flatulence, borborygmi, pain near the apex of the heart, and at the middle of the left arm, hysterical convulsions, etc. In addition there is troublesome cough, general soreness of chest, tenderness over cervical and dorsal vertebræ. Cases of this description have been mistaken for consumption or spinal disease; they depend, however, entirely on leucorrhœa, or some uterine displacement, which may be of long duration; and recover on remedying these conditions. In another set of cases a middle-aged woman suffers from aphonia; loss of strength, sweating, and passes a large quantity of pale urine. These symptoms come and go at

various times without apparent cause. The patient has a large and flabby uterus, and is cured by ergot. A woman had obstinate eczema of one side of her face, also severe dysmenorrhœa, narrowing of the cervix, and great irritability or cervicitis; remedying these latter troubles cured the eczema also.

Cutaneous eruptions are complementary of internal disease. Cases are recorded where mild pneumonia, pleuro-pneumonia, or bronchitis, have been associated with a rash like that of scarlatina or measles. Measles is the completion of a disease which begins as a slight congestion of the lungs, or more particularly of the bronchial mucous membrane; and scarlatina rash bears a similar relation to the angina.

When general rheumatism and endocarditis co-exist, the heart mischief is less serious than when it occurs primarily, or when the rheumatism is disappearing. A vesicular eruption often occurs in rheumatism, which seems to moderate the violence of the disease. The good effects of blisters may be explained by their supplying the absent complementary part. Continuous recurrence of transient lancinating pains in various parts of the body occurs in organic cardiac disease, and occasionally in functional disturbance; these are complementary parts of disease.—(*"London Med. Rec.,"* April 28, 1875.)

Empyæmia treated by Free Incisions.—In the *"Boston Medical and Surgical Journal,"* October 22nd, 1874, Dr. J. T. Boutelle records the following case:—A youth, aged nineteen, after repeated attacks of cold, was confined to bed with pyrexia, acute pain in right side, etc. After being in this condition six weeks, he was first seen, and then there was great emaciation, marked hectic flush and profuse sweating both night and day. From the physical signs and symptoms it was diagnosed that there was a large quantity of fœtid pus in the right pleura, and an opening in the lung near the apex. The patient was tapped with the aspirator between the seventh and eighth ribs, two inches from the lower angle of the scapula, and three pints of thick brown fœtid frothy pus were removed. Generous diet and stimulants were ordered, and his condition improved somewhat. Four days later a permanent opening was made; a knife was passed between the eighth and ninth ribs, an inch to the right of the angle of the scapula, and the incision slightly enlarged on withdrawing the blade. No pus escaped. An india-rubber drainage tube was passed in about five inches, and secured by strapping; the aspirator pump was attached to the tube, but no pus could be withdrawn. Then a little warm water was injected; next the tube was taken out, clots were removed from it, and then it was re-introduced, and still no pus came; again the tube was removed, and a canula introduced, with no better success; and then, as the patient was becoming faint, this was withdrawn, and a poultice put on. Five days later, the patient

having become rather worse, ether was given, and a larger opening made. A trocar was passed in at the point where the first tapping with the aspirator, had been performed, and when the pus began to flow, an incision three inches long was made through the skin, having its centre at the point of puncture. The incision was made deeper by dissection, and the pleural cavity was opened to an extent of two and a half inches, and about three pints of foetid pus escaped. On examining with the finger, a smooth line of adhesion was found a few inches below the incision passing downwards and backwards to the bottom of the sac of the abscess.

During the ensuing fortnight the patient did well, his appetite being much improved. The opening in the pleura was found to have closed by granulation. The opening was again made patent in its whole length by breaking down the adhesions with the finger, while the patient was under the influence of ether; then about a pint and a half of foetid pus escaped. An india-rubber drainage tube was then passed in, and the cavity syringed out with warm water, containing a trace of carbolic acid; the tube was afterwards secured by strapping.

The thorax was washed out with warm water daily for three weeks, but he gradually sank and died. No trace of tubercle was found in the lungs. The author calls attention to the following points:—

The general condition of the patient, the duration of the disease, the excessive sweating, the painful bedsores, and the general prostration, all of them unfavourable to the operation.

The immediate relief and improvement in strength following the evacuation of pus, the general health gaining ground up to within two weeks of death.

The rapidity with which the pleural incision closed by granulation, showing the necessity of inserting lint or tubes, at the time of operation, to guard against this.

The inflammatory disturbance, extensive and protracted as it was, not being followed by tubercular deposit.

The lesson taught by the unsuccessful incision lower down, that it is not always an advisable proceeding. The autopsy showed this lower incision to be nearly two inches too low to enter the cavity.—("London Med. Rec.," Dec. 30, 1874.)

Treatment of Coryza.—Dr. J. S. Prout ("New York Medical Record," Jan. 1st, 1874) advocates the use of tincture of the chloride of iron. Twenty or thirty minims of the tincture have often, when taken directly after the cold is caught, cut short the symptoms in both himself and his patients. In about half an hour the improvement is decided, and, if this should pass off, the dose ought to be repeated two or three times every three hours. The iron may be given conveniently with glycerine.—("London Med. Rec.," April 29, 1874.)

Aneurism of the Aorta.—Dr. W. H. Webb, of Philadelphia, records a case of aneurism of the arch of the aorta of extraordinarily long duration. The patient survived sixteen days after the chest-wall was perforated by it; and a large clot plugged the perforation, and protruded beyond the level of the skin.

The case was that of a woman, æt. 43, who had been under Dr. Da Costa's observation almost eight years, with aneurism of the arch of the aorta.

Three years previous to the first time she was seen, she had suffered from severe fright and great exertion, which probably gave origin to the disease. When first examined, the patient presented a bulging of the upper part of the sternum, and other signs of thoracic aneurism; but nothing specially remarkable about them. During the first four years of observation, the tumour gradually enlarged. In the course of the following year, the skin over the sternum, where the tumour was pointing, became discoloured. In the sixth year, the tumour was accidentally struck by a large scrubbing-brush, and diminished considerably in size. Some few months later, it increased in size again, and rather suddenly. After more than seven years' treatment, the symptoms became alarming. On the front surface of the tumour a spot $\frac{3}{4}$ inch in diameter looked as if it were beginning to ulcerate, and the blood-current could be felt beneath it. A plaster of Emp. opii et Emp. aconiti a.a., spread on sheepskin, was applied over this surface. A month after, a spot of blood was found to have oozed through on to the woman's linen. Five days later, rupture occurred at the most anterior part: a stream of blood about the size of a lead-pencil poured out, and suddenly ceased when the patient had lost about two pints of blood. The hæmorrhage recurred every other day or so for sixteen days, and then the patient died, not from a sudden hæmorrhage, but from exhaustion. Excessive pain occurred and continued after the rupture. Three days before her death a laminated clot protruded through the rent, and the blood serum had been oozing through it. This mass increased before death, till it was ten inches in circumference, and protruded three inches beyond the sac.

Post-mortem. The aneurism was found beginning $1\frac{1}{2}$ inches from the origin of the aorta, and ending at the beginning of the thoracic aorta; a second was found at the root of the right common carotid; and another marked dilatation, about half the size of a walnut, was found on the outer and left side of the third portion of the arch of the aorta. The anterior margin of the sac of the large aneurism was attached to the sternum at the point of erosion, and when it became perforated, and until the skin ruptured, the skin and cellular tissue formed the upper and anterior portion of the sac-wall. The whole

of the sac was filled with a very solid clot, which extended through the sternum; and by its pressure forwards the skin and cellular tissue were absorbed, until the skin parted, when it protruded, thus plugging the orifice. The clot undermined the tissues round the opening in the sternum to a considerable degree. The heart was only two-thirds its natural size, and its valves were competent.

The treatment was varied. Rest was enjoined, but this she does not seem to have submitted to; and in the sixth year she gave birth to a child, but the labour was said not to have influenced the tumour. Iron and digitalis were tried during the first three years; then ergot internally, and the local application of opium plaster were prescribed for a year. Iodide of potassium was next resorted to, and was combined, at different times, with opium, belladonna, cannabis Indica, and veratrum viride. After the rupture the plaster, before described, was used, and liq. ferri subsulphatis dil. controlled the bleeding. Morphia was then given freely. The solution of iron salt stopped the hæmorrhage each time, till at last the clot was washed away as soon as formed.—("London Med. Rec.," March 10, 1875.)

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